

## THE PROBLEM OF ARMAMENTS



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# THE PROBLEM OF ARMAMENTS

*A BOOK FOR EVERY CITIZEN OF EVERY  
COUNTRY*

BY

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M.INST.MECH.E.

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TO  
ALL THOSE CITIZENS OF MANY COUNTRIES WHO TOILED  
AND SUFFERED AND SORROWED AND DIED IN  
THE GREAT STRUGGLE OF 1914-1918,  
AND WHO FIND THAT THEIR  
SACRIFICES IN A WAR TO  
END WAR ARE STILL  
INEFFECTUAL



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# THE PROBLEM OF ARMAMENTS

## PART I.—ARMAMENTS AND THEIR CAUSES

### SECTION I.—AUTHOR'S NOTE

AT one time, when beginning to work on this book, I had hoped that it might comprise a fairly complete statement of the whole problem involved by Armaments; but after nearly two years spent on the many details inseparable from such a presentation, it became clear that a volume of ten times the capacity of this one would be needed to carry out my ideal. One of the main objects in view was the production of a handy, inexpensive but informing book which might be read by a large number of people, so the matter available had to be severely cut down.

Nor could my original intention of giving parallel tables of *official* figures of expenditure up to 1921-2 by all the countries under review be completely accomplished. Obviously, it is possible (though not always easy) to obtain information on the extent of the problem in Great Britain, by means of Government returns and through other sources which have been most courteously placed at my disposal by the Departments concerned; but to find complete official corresponding

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data up to 1921-2 bearing upon other countries was impossible, partly because published Government information is not so extensive, and partly because years might be spent merely in the endeavour to trace such information amid the labyrinth of foreign records and differing systems, and because the accounts of several countries are still incomplete.

At one time it seemed that the tables of foreign expenditure beyond 1913-14 must be abandoned, but I decided to put my object direct to the Embassies and Legations in London, to Secretaries of Foreign Affairs for Europe and to the British Foreign Office, and was most courteously and readily helped. Thus the tables instead of being cut short at 1914 were completed in most cases up to 1920.

It is sincerely hoped, both by myself and by those interested in this essay, that in the future a larger and more nearly complete edition may be prepared, stating more fully the details of each aspect of the problem. For the present, we must rest content with the publication of this small volume, in English, and, if possible, translated into French, German and Italian, presenting, at any rate, some of the more weighty considerations.

Even after coming to this decision, and being compelled to curtail the tables of comparative information, I am well aware that there are many wide gaps to be filled. The facts as given, however, are sufficiently impressive to bring vividly before the mind of any thoughtful person the appalling character and extent of the vital problem under discussion.

A good many years of travel and short residence in Africa, Australia, America and many of the British, French and German Colonies have convinced me, as they would convince anyone else beyond doubt,

that there is abundant space, land, food and material for housing, feeding and clothing the whole human family, and for absorbing its energies for many centuries to come; also that a half-century of determined statesmanlike action of a concerted international character might relieve the pressure in other parts of the world.

This conviction brings in its train increasing wonder that the great mass of human beings should fight each other for the essentials of life and for the materials of their businesses and trades. Yet they do, and the way out seems to be unobserved; and unhappily to-day, unless one goes about the world wilfully blind, one is forced to realise that the questions of armaments and of fighting have become during the past quarter of a century almost the *overriding problems of civilised life as now constituted*. To attempt the history of armaments would be to attempt a history of the modern world.

It would seem, of recent years, that the human race is coming to regard the production of appliances for killing as its chief work. A few hours spent in a Patent Office Library would reveal some most interesting facts. For example, on May 5th, 1718, James Tuckle received Letters Patent for a warlike invention. The inventor claimed great advantages for a new type of "gun or machine called a 'Defense' that discharges soe often and soe many bullets and can be soe quickly loaden as renders it next to impossible to carry any ship by boarding." Its peculiar virtue lay in the fact that it was constructed with two sets of magazines—one for round bullets, for fighting Christians, and the other for square bullets with sharp edges, to be used against Turks! Since then the records show thousands

upon thousands of Patents relating to apparatus and material for the equipment of combatants. For a very long time enterprise and invention in the field of engineering and in the chemical industry have been mainly concentrated upon rendering all such appliances more effective, and those men have been described as the most patriotic who could devise, by high explosives, fire and poison gas, by mechanical combinations and applications of astonishing ingenuity, means for destroying most surely, most rapidly, their fellow-creatures. Hence come the armaments of nations, and the inevitable troubles which attend them, and which some people attribute to military and naval experts. It must not be forgotten that the work for which these experts have been selected by their country is to keep in readiness sufficient protective armaments to ensure the safety of country or empire in case of attack, and that the situation in which such experts find themselves, in carrying out their daily duties, is not of their own making. It is, however, their part to satisfy Government and people. Some may treat the work casually, even carelessly, others perhaps with too serious or elaborate a view of the character and amount of armament needed. But in whatever way the situation is considered, the result is the same—a continual mounting of effort and expenditure on the world's fighting departments, as may be seen in the tables of fleets, warlike expenditure and other information given in this book.

The real pathos of the whole position is that critical moments occur—and flame often into irremediable disaster—which arise merely from the temper of one nation toward another, its jealousy, suspicion, or dread : a thought which recurs irresistibly in the light of past

history and in the no less lurid light of present war preparations.

The statesman or politician in whose hands lies the fate of his nation, possibly of other nations also, needs the profoundest wisdom, the deepest patience, the finest ideals; he must be forceful enough in his outlook on international affairs to provide against dangerous situations, and to convince his own people that he has done so; and in order to place himself in such a position, it is necessary that he shall accept and act upon the advice of naval and military experts. And what is he to do, when "civilised" races are expending the larger part of their national income, energy and resources on destructive machinery? The natural consequence is a tendency towards the negation of all higher instincts, which threatens the very existence not only of Western civilisation, but of organised Christianity itself. To some, the weapons of defence and offence have appeared as a means of safety; to others as a way to more open territory and a less crowded homeland; to many they have offered the only sound method of maintaining a food supply sufficient to preserve the state of life to which they have been accustomed by habit and education. To a few they are symbols of glory and the signs of manhood; but the numbers of this class are diminishing and the glamour which obscured their vision has paled and faded, leaving the grey realities of war.

The boomerang, spear, arrow and war-club, easily produced from the wood of growing trees and bones of fishes—the simple, almost natural, weapons of primitive man—gave place as civilisation advanced to the knife, the sword, the bayonet and rifle; these in turn became of little use when matched against the

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semi-modern arms—cannon of long range, high-explosive shells of tremendous power, and the deadly hand-grenade and bomb. But what chance have even these when the human beings controlling them are put out of action by toxic gases, tear-shells and aerial torpedoes?

So, as years pass, the competition increases, science, mechanics and generally developed knowledge enabling us to transmute the ores of metals and the crude elements of the earth's crust into the machinery of destruction, the subtle poison-fumes, the fierce explosive, the flame-jet.

And now—we can fly; so why should we not take our poison, our explosives, our stores of virulent microbes up and away over all the earth and destroy whom we will? What shall prevent us? These, in practice, are the thoughts that are moving man to war.

Unfortunately, it is accepted by many that there is no real cure for, or escape from, the tangle into which the human race, by its own free will, has been drawn. One talks of these things, to be met as a rule by a kind of impotent, complacent fatalism, which sees no available remedy for the lamentable situation. Was not the human race born free, and has it not fettered itself?

But can it be true that humanity has arrived at a point in its history where it is shorn of intellect, of power, of the will to tackle this pressing problem of armaments? Partly because of my belief that this hour of paralysis has not arrived, and that the problem only needs clearly stating to be more clearly apprehended in all its importance, to arouse effort to solve it, I have felt moved to place this essay before the thinking public. The voluntary "Peace Movement"

should by now have done something really great, but some twenty-five years' knowledge of it has shown conclusively but unfortunately that unanimity in fundamentals does not always signify perfect harmony in the supporters of a cause, but often means considerable disagreement in practice. There are differences, for instance, among those who range themselves on the side of peace, over such questions as the wisdom or rightness of defending oneself or one's country from attack, or assisting in the defence of others when appealed to for help, and the protection of weaker nations from invasion; lines of thought on these and some other matters are very divergent. But something practical, dealing with the actual problems that confront us, seems more necessary than the reiteration of abstract principles, however good they may be. The repeated failure of many of the "Peace" organisations and groups to do much more than condemn war, emphasise its wickedness, and pass excellent resolutions, is often most discouraging, and the monotonous turning down by such organisations of constructive measures seems sometimes to rob the "Peace" movement of reality. On several occasions in past years I have seen many such constructive efforts crippled, when it came to the question of keeping the peace against evil-doers, or removing the fear of others by agreeing to protect them, by an attitude exemplified in the phrase, "Force, protective or offensive, either limited or unlimited, is wicked." So the Covenant of the League of Nations came in for obloquy, condemnation, opposition or patronising advice on its ideals, instead of the real active assistance and moral support which is deserved at the hands of all true lovers of peace and progress.

The same fate has met proposals to collect statistics and to make a reasoned statement of the "problem of armaments," with the aim of bringing before the people of many lands the enormous extent and terrible effects of the business of war, and demonstrating to what a degree it had become a part of the whole social fabric and bound up with the entire economic life of the nations. Here, again, one found little help, but plenteous opposition, because, as it was said, "there ought not to be a continuance of the present economic system."

I have long felt that the facts ought to be brought into the light and that such a book as this was needed, so the task was taken up willingly, but with many misgivings. The book has been written in spare hours in the midst of a strenuous business life, not by a literary man, but by an engineer. It has grown from notes scribbled in trains and in waiting-rooms, from information gathered at odd moments when opportunity offered. The tables have been collated and checked here and there, on journeys, at hotels, during lulls in business; the arguments have often been thought out under the same conditions; and the book itself has been put together under the midnight oil. Here, then, incomplete though it must be by its very nature, is the result, presented to the thoughtful reader in the hope that it may at least bring some fellow human beings, in whatever country they may be, whatever language they may speak, to decide that *upon them and their neighbours lies the duty* of contributing their quota to the solution of the Problem of Armaments.

A. G. E.

*Hurstmonceux, Sussex,  
May, 1923.*



SECTION II.—THE NATURAL MAN AND THE ORDINARY  
CITIZEN, AND THEIR REASONS FOR MAINTAINING  
ARMAMENTS

THE Government departments of all nations, with whom rest the responsibility of determining the nature and extent of their respective fighting equipment, derive their authority, presumably, from the ascertained needs of their several countries. There are risks to be met; the State must be safeguarded; and it is interesting and educative to study the reasons advanced by statesmen, by Government departments, and by the normal citizens or "natural" men, from their various points of view, for this expenditure.

One has not to examine the subject very deeply before discovering that the principal origin of a national policy which, later, becomes translated into terms of fighting material by the executive departments concerned, is the fundamental human emotion of fear. In the first place, individuals fear dangers which seem real and urgent, such as, in countries not self-sustaining, the failure of food supplies; or possible attacks on territories in their control or possession. These fears, reacting on the minds of the custodians of public safety—either political or executive—develop as public policies; and, in due course, public uneasiness is allayed by the assurances of statesmen or departmental representatives that adequate protection has been, or will be, provided.

The public, let us note, *expects* these assurances, and, having provided its Governments with mandates and money for the newly-desired defensive preparations, does not pause to consider sufficiently the effect, of this action on the other communities. In other words, we fear for our safety, and take very adequate precautions (with a margin to spare) without appreciating the peril to others which rouses fear in them, and is inevitably followed by sufficient action on their part to allay public terror. We thus have an endless sequence of natural, but pernicious, reactions, and it needs deeper reflection and a more enlightened outlook on the part of all—the departmental men, common or natural citizens, politicians and statesmen—to realise the extent to which these proceedings react on their neighbours, and bring into being more and more of the very conditions which they fear. With this attitude of mind, it becomes quite usual to ascribe the responsibility to the “other fellow,” to lay the blame for increasing armaments on those wicked statesmen of other countries who are for ever challenging our safety. These general considerations undoubtedly portray the common state of mind which has resulted in what might be termed popular nationalistic militarism and the state of being which has culminated in a system of rival armaments.

Some more definite point may be given to the general argument by instances taken almost at random from the experience of the last few years.

When opening the new session of the Dutch States in September 1921, Queen Wilhelmina, in her speech from the throne, referred with appreciation to the decision of the countries adhering to the League of

Nations to establish at the Hague a permanent Court of National Justice. At the same time, she announced the introduction of various Bills, including one for the strengthening of the Dutch Navy, in view of the *necessity for the defence* of the Dutch East Indies. Nothing was said about the people against whom the Dutch East Indies were to be protected; but if Holland had been able to state the position frankly before, say, the League of Nations, it might have been possible to allay her fears without the need for building fresh defensive warships, and thus helped to solve, in a small way, the problem of armaments. This, of course, is only one type of case; similar instances might be multiplied.

Before the Great War, one of the most telling stock arguments against the reduction of British naval expenditure was that the British Admiralty had to meet the continual growth of the German Navy. To-day, the German Navy can hardly be said to exist. This prime difficulty being removed, is it not time to reduce our own Navy, in concerted action with other naval Powers, and before the others persuade themselves that increases are necessary? <sup>1</sup>

Not long before the outbreak of war, after a business discussion with Lieut.-Commander Wiedenmann, of the German Embassy, I ventured to mention to him how uneasy people in this country were becoming, and to ask him frankly what were his own personal arguments for the steady increase of the German Navy. It seems that no harm would now result from publishing this incident. He turned to a large map of the world on the wall of his office, and said :

<sup>1</sup> Written before the Washington Conference.

"Have you ever pictured the condition in which Germany would find herself if war were to break out between the German Empire and, for example, Japan? You know the first thing that Germany would want, is coal, and the second thing is coal, and the third thing is coal. Where could she get it?"

He then indicated various points on the map, tracing the route which German warships would have to follow in order to reach Japan, naming in turn the French ports, Gibraltar, Malta, Port Said, Aden, Colombo, Singapore, Hong Kong, etc. He then said, "Is it not clear to you that, to enable Germany to carry on a war with Japan, she must provide herself with Navy colliers and convoys, and transport her own fuel from Europe to the Yellow Sea?"

True enough; but only part of the whole truth. Press reports of the utterances of many of those responsible for the maintenance and enlargement of the German Navy show that at the back of her augmented armament lay her fears of France and Russia, the extension of her overseas trade, her desire to find a larger "place in the sun," and (probably the most potent factor) her desire to impress, even to impose, upon other peoples her "kultur." It may be observed here that any country seeking to *impose* her own ideas, either of business, education or civilisation in general, upon others, is definitely encouraging those concerned with armaments in other communities to increase their fighting forces. It is this feature of patriotism which is dangerous and unprogressive, and tends to retard the human race. The patriotism, however, which seeks to inculcate, in its own country first, and then in humanity in general, ideals of justice, clean living and fair dealing, or to interest other com-

munities in truly progressive movements, is welding the race together and working for the ultimate good of human kind.

A friend, returned from a visit to Germany and Austria in 1921, described the conditions among the common people as serious in the extreme.

“The working classes,” he says, “are faced with an increasing cost of living which compels them to exist without many of the necessities of life, while the middle classes are progressing from day to day, in circumstances of increasing hardship, to a final ruin which they have come to regard as inevitable. But as one travels through Europe, one feels instinctively that ruin is not inevitable, and that wise statesmanship, and a new spirit among the peoples, would have a speedy fruition in peace and prosperity. With our war debts and reparations, our petty jealousies and sordid quarrels, we seek to govern the world with the narrow vision of pre-war days. But the world of 1914 cannot be carried forward to 1922. We stand among the ruin of 1914—a civilisation which human folly brought to the dust. Only a new spirit large enough for the present emergency can now save the world.”

The pity of it is that, as my friend pointed out, it was in the old middle class, almost starving, that the culture of Vienna and other centres had its being, and among them were preserved the traditions of music and the arts; whether the young middle class will be able through privation and hardship, and by adaptation to changing conditions, to win through and carry the good of its rich inheritance into the world of to-morrow, remains to be seen. My friend concludes, not without sadness :

“ What I have seen makes a terrible sum total of human suffering. What is the remedy for it all? Relief work, necessary and good as it is, can do very little; it is merely an ointment to cover the skin—the real trouble is in the blood. Is there a remedy? The continued low standard of living is bringing down the health and the morale of the people of Central Europe, and among all classes one finds nothing but despair. In Austria, the continued Entente promises of credits have so far proved little more than words. The present League of Nations scheme has been in abeyance, pending co-operation from America. Meanwhile, the Entente policy leads on to fresh chaos. Are we content to acquiesce in all its implications—distress in Central Europe and unemployment in our own land—or shall we work for that spirit of co-operation (which, translated into action, means the cancellation of war debts and indemnities, and freedom of trade between peoples) which alone can bring us real peace? ”

These extracts are included for the sake of giving point to the twin questions—are not the members of the rising generation in that country almost certain to say that their condition is imposed on them as a result of the Treaty of Versailles? Are they not almost certain to conclude that there is little hope for them from the rest of Europe unless they make themselves strong enough to alter their position by force of arms, or by interesting others who have force at their command?

In days to come, those who made that Treaty may discover that the natural man, the ordinary citizen of the Central European communities, has found in it grounds for arming, consequently rendering the problem of Armaments more difficult to solve than it

ever was. There is yet some opportunity left for remedying the defects of the Treaty, as suggested in Part III, Section II.

Frank declarations from public men of the real intentions that lie behind their armaments, have ever been difficult to obtain; usually the published information has for its motive the allaying of the public forebodings, and the heart of the matter is concealed. Probably one of the frankest and most remarkable utterances of later times in this connection, advancing his country's reasons for maintaining certain armaments, was the speech of M. Noblemaire at the meeting of the Assembly of the League of Nations in Geneva, September 1921. Supporting the recommendations of the Committee which had brought in the Report on Disarmament, he said :

“ France was willing to support the demand for information as to armaments, and even to go further and assist the Council in realising a practical scheme for disarmament. . . . Why should not all the hopes of these heroes who had died for each country be realised ? Why cannot France and Germany live side by side, great, prosperous and pacific ? Were they not assembled in Geneva to make that hope practical ? That was what the French delegation desired, that was what the whole pacific and laborious French people desired. Pacific indeed, but that did not imply that they should be systematically deaf to the warlike clamour which arises in many parts of the world. Nor that they should be blind to the conflagrations which are still raging. . . . The conditions were better than they were yesterday, but they would like to see them better still to-morrow. German disarmament was nearly completed, but the possibility of re-armament was no less an essential

condition of security. What was the use of destroying obsolete weapons if people in the meantime manufactured improved weapons of greater destructive power? . . . France was ready when the time came to effect a reduction of armaments and to accept fully all the investigations which the League of Nations might desire to make, but she wanted first of all the preliminary conditions of security. More was required than a material disarmament. ~~What was wanted was~~ a moral disarmament. In France this moral disarmament was an established fact. All the French people desired to lay aside their armour as soon as the danger which threatened them had been removed. They felt that the spirit of to-day was not the same as it was before the war.

"France had been baptised in blood and tears in the trenches. They were spectators of a strange duel between the spirit of war and revenge on the one hand and the spirit of work and peace on the other. . . . France could feel secure (and that would be the security of all Europe) when the German Republic was established on a stable foundation, and when it was filled with the ideals of justice, dignity and liberty, which are the ideals of the League of Nations. Unfortunately, this duel was not yet concluded, and meanwhile France must keep her weapons in readiness. Because of that people had not scrupled to speak of France as militarist. He must denounce that flagrant lie, that iniquitous calumny. Was it France's fault that she was bound to be the policeman of treaties, bound to maintain outside her frontiers 200,000 men to secure peace, that her shoulders were bowed with the burden of armaments? There was the fear that they would break. France was obliged to be military for the present and to continue to be, in order:



to avoid a resumption of the war. She did not want to have lost a million and a half of lives, for nothing.

“After this frank explanation, he was sure the Assembly would allow him to repudiate utterly this false, lying caricature of a militarist France. When he spoke he saw before him not only the Assembly, but the shades of those young heroes whom he had been obliged often to send to danger and death. He did not wish to have to do that again. No Frenchman desired it. There was no Frenchman who did not pray that those times would never occur again. No one desired peace more than France, because no one had suffered more than she, but the existence of their country was at stake. France, like many other States, formerly used the well-worn proverb, ‘If you want peace, prepare for war.’ What could be more inapplicable than that saying to-day? And the profound conviction of all France was that if you want peace, prepare for peace.”

In M. Poincaré’s famous speech at Bar-le-Duc, made in April 1922, at a critical moment in the Genoa Conference, the same fear of others, to which we have alluded, is seen. “It would be useless,” said the French Premier, “shutting one’s eyes to the fact that, thanks to the German-Russian Agreement, a large portion of the German population would be able to cherish and develop their hope of revenge for the military defeat of the late war.” Again: “The French Parliament had seriously considered the question of the reduction of the period of military service. But in view of the Russo-German Treaty, could any reasonably minded person now expect France to diminish her armed strength?”

"~~The extreme vigilance of war-time must be continued into the era of peace,~~" said M. Clemenceau, on another occasion; yet even he deplores the need for huge armaments. In many ways his speech is suggestive of M. Noblemaire's:

"Our war of the Entente would be a mockery if it had not for ever closed the door to a policy which is so clearly exhausted. All of us have need of the others. It is on the prosaic calculation of unconcealed interests that the future must be founded. All of us have given too much of ourselves to the common cause not to preserve respect for it, and to feel deeply the necessity of union in the hour of difficulties. Does not the very magnitude of modern wars make impossible for everybody dreams of militarism? Our conscience, our feelings and our wishes are those of peace, and we will never lose an opportunity of proving it. The rule of to-day must be neither to dominate nor to be dominated—a peace of equity for the whole world."

The arguments for maintenance of armaments given by the average man in every-day conversation are not very varied. Usually in Great Britain anyone advocating reduction of armaments is met by the remark: "Yes, your argument is all very well, but what about our food supply? How are you going to maintain order in India, or to protect our frontiers in other parts of the world?" Or "What about the Moplahs?" "How can you deal with the Dutch nationalists in South Africa?" and similar questions. The food supply of any country is vital to its existence, and unless and until—even in time of war—it can be guaranteed one to the other by a League of civilised nations, the most potent cause of naval

armaments will remain operative. Most, if not all, of these other potential causes of dispute may be partly solved under the principles of justice and equity, through argued agreements, and by a statesmanlike establishment of good laws for the majorities of such peoples, particularly those which are partially developed. Once this is done, there will remain the much simpler task of maintaining safety and order under a just and legal *status quo*. It may be definitely said that, however difficult these questions may be to answer, *they*, at any rate, do not warrant perpetual and ever-increasing armaments to the enormous extent and with the ramifications of the last twenty years.

Again, the advocate of systematic disarmament, naturally convincing himself more easily than his hearers, is asked: "What would you do to counter an attack from such and such a nation?" This "poser," of course, omits consideration of the very important factor that disarmament, or reduction and limitation of armaments, must be general, agreed upon internationally.

Quite recently I took part in a discussion upon the possibilities of the annihilation of London or any other great city by bombs or poison gas, in an attack on the part of some unnamed European Power. It is not easy to lead such conversation away from a general and academic atmosphere, and one repeatedly finds that fears of this kind are based upon unsound hypotheses. The first appears to be the existence of a Power sufficiently wealthy to conduct such an attack; the second, that the apparatus, material and human—aeroplanes, poison bombs and the necessary highly-trained personnel of airmen and mechanics—could be prepared in secret ready for launching a

surprise attack; the third, that some nation has a reason for making the imagined onslaught. Here, of course, one begins to leave the region of theorising: it becomes clear that certain fears exist that London may be singled out as a victim by Germany for reasons of revenge, to obliterate the disgrace of defeat in the field, and the dishonour of the Treaty of Versailles. But if London, why not, before that, Paris? Or if Germany is to achieve the aims attributed to her in such conversations, why not deal with Paris and London, Rome and New York simultaneously?

These seem to be the main lines of current thought, and it must, of course, be admitted that an aeroplane attack would be more easily accomplished nowadays, after preparation in secret, than a naval attack could have been during the past decade. These fears and questions are not easy to answer; indeed, such an attack and the means for conducting it were contemplated as possibilities at the famous Conference on Limitation of Armaments held at Washington. At this Conference a Committee on Aircraft considered at great length the question of limitation of fighting aircraft, from almost every point of view. The copy of the findings of this Committee, contained in pages 24-37 of the Report of the Conference presented to Parliament by command of the King, is to be found in White Paper No. C.M.D. 1627 of 1922. It may be of interest to reproduce the five points considered by this Committee. Page 42 reads as follows:

The Committee are agreed that among the more important elements which influence the power that a nation may exert by means of aircraft, are the following:

1. The adaptability of its people to aeronautics.

2. Geographic location and characteristics of the territory occupied by the nation and its dependencies.

3. The ability to produce and maintain aircraft and accessories.

4. The amount and character of aeronautical activity outside the military establishment, such as commercial and civil aeronautical activities, and sport and pleasure flying.

5. The size and efficiency of its air establishment for military purposes, consisting of: (a) The active establishment, including permanent Headquarters, Bureaux, Squadrons, Schools, Technical Establishments, Depots for Material and Personnel, etc. (b) The Reserve Establishment, including organised and unorganised Reserve Personnel and War Reserve of Material.

These five clauses were reported upon separately, and to those studying this particular side of the subject the full report is of vital interest. The Committee's final conclusion was, that it is not practicable to impose any effective limitations upon the numbers or characteristics of aircraft, either commercial or military, except in the single case of the lighter-than-air type. This Report was signed by representatives of the U.S.A., the British Empire, France, Italy and Japan.

We may note as an item of some interest that the Italian representative believed it would be possible to regulate the air power of a nation by restricting the number of pilots in the permanent military establishment, and added a note to that effect to the Report, which was adopted by the Committee on the Limitation of Armaments at Washington on January 9, 1922. There is much to be said for this. Why should not every nation publicly register in its Government returns

the number of pilots trained during every three months of the year, and the number of those otherwise available for this service? This might have the double effect of assuring the people of each nation who are in fear of an attack that measures of defence are being taken, and, at the same time, of preventing one nation from training an unreasonable number of pilots under a concerted limitation of fighting facilities.

The reader may here lean to the opinion that one is giving away one's case; but further reflection will remove this impression. There are two weak points in the position of those who spread the alarm that England's great metropolis is in peril; first, they cannot name any Power either in the position to conduct such an attack, or desirous of doing so; secondly, they use their fears as a means of persuading their countrymen to prepare a defence against the first hypothesis. Great efforts are made to rouse public opinion and to bring pressure to bear on the Government to prepare kite-balloons to form a defence round London, or fighting aeroplanes to spring forth at the first word of an attack, and mobile anti-aircraft guns on swift lorries to proceed to convenient spots for shelling the raiding 'planes. In addition, the Government is asked to manufacture enough bombing 'planes to proceed over the enemy's country and prevent *at its source* the expected attack. Does it occur to these advocates of preparedness that exactly similar proceedings have been urged upon Governments, and adopted by them, for many years past, one against another, and that this very state of mutual precaution has brought about the present tangle?

What effect would such preparations have, based upon a hypothetical danger from no one knows what

quarters? Probably the effect on other nations would be a conviction that we intended to attack one, or several of them, directly our equipment was complete. Here we have, once more, the vicious circle such as we have seen in Naval Armaments, and the beginning of a never-ending competition between all Powers which, by reason of the fears produced in the minds of their population, could squeeze out of their national incomes sufficient money to pay for these anti-aircraft guns, balloons, bombing raiders and the like. There is one most important question to be answered first: "Supposing we provide you with the money to prepare for meeting your alarm, can you make London, or Paris, or Berlin, or Madrid, Lisbon, Rome, Vienna, New York, Rio, Tokio, Peking or any other great centre safe against such an attack?" A reply to that question is given by men who have carefully studied the pros and cons, and is probably voiced as effectively as it could be by a leader-writer in the *Daily Express* of July 20, 1922, when he says: "Can London be defended by any means? Two lines of guns, wheel to wheel, encircling the capital; great apron balloon defences; hundreds of squadrons of day and night flying machines? By such means we might ensure that only, say, a third of an attacking host could penetrate barrage, apron and aeroplanes with explosives and poison-gas. But these are gigantic measures, enormously expensive. Can even such good security be guaranteed? It is time to face these questions, which apply to every capital and country in our new civilised world. Soothing syrup will not preserve our bodies or save our souls."

Advocates of disarmament can indeed agree with this clear exposition of facts. But would not a greater protection than all the weapons possible of production

be found if every man and woman would think the position out for themselves and say that the time has come when no citizen of their own or any other country ought to harbour any design on the cities of other countries, and, further, that every citizen with his country's interest at heart should see to it, as far as lies within the power of his pen and voice and purse, that his Government shall not be able to find the backing either to plan or carry out such an attack? Surely whatever reasons, passion or prejudice stand in the way must give place to the need of the human race for peaceful progress, and the addition of further complication to this problem must be avoided at all costs.



## PART II.—THE EXTENT OF THE PROBLEM

### INTRODUCTION TO SOME FACTS AND FIGURES

THERE comes a time in every argument when thesis, assertion and statement have to be reinforced by proofs of a nature different from intellectual conviction. We may know the sum is right, but a definite proof assists our belief in the method, and strengthens our hands when we are endeavouring to pass on to others evidence of our own sincerity.

Happily, after intense and widespread search, figures so authoritative as to be beyond question have been collected, bearing on the theme of this book; and, if they appear formidable, a second glance will show their simplicity. In little space, and with a conciseness possible by no conceivable arrangement of words, the tables present information which may surprise even those who have given some consideration to the subject, and which, in any case, must provoke serious thought. We have noted that these tables are essentially simple; but to the writer they bring memories of fifteen months of investigation, of correspondence with Foreign Offices, of record-searching, followed by months of monotonous drudgery in making draft tables, sorting out thousands of figures, classifying, tabulating and checking. It is easy to decide that one will state, for example, the number and size of the ships built for the Navies of the eight chief Naval Powers and give the naval and military expenditure of fourteen countries over a period of twenty-one years; but it is not so easy to ascertain where this information may be obtained. Members of

Parliament and statesmen have access to sources which are either unknown or closed to the layman or businessman, and I must express the gratitude I feel for the help so willingly given to me by the Right Hon. Lord Gainford of Headlam, whose guidance, in discovering where various printed documents and returns vital to my scheme could be found, was invaluable. To the Right Hon. Stanley Baldwin, M.P., when at the Board of Trade, and many others, without whose ready assistance this chapter would never have materialised, my thanks are also due; and it is with special pleasure that I place on record the help given by the Parliamentary Librarian of H.M. Stationery Office, Kingsway. Anyone for the first time attempting to obtain specific information at that Office must be amazed at the number and variety of Reports, White Papers, Blue Books, Pilot Books, Handbooks, Bills, Technical Documents, Acts, Manuals, Statutes, Parliamentary Records, Chronicles, Departmental Records, miscellaneous papers and pamphlets issued; and even to select those that are likely to contain the items desired is no small task. In Sections I to IV of this part of the book appear some facts and figures obtained through the official and other channels, tending to demonstrate the character and magnitude of this whole problem.

#### SECTION I.—NAVAL STATISTICS, BRITISH AND FOREIGN, 1900–1920

HAVING obtained the necessary volumes, one begins with a light heart to frame up tables in preliminary form, to extract and check columns of figures, spurred on by the hope that one day the tables will be finished

and doing their silent work in the public mind; this hope did much to relieve the monotony of many months spent in tabulating. The labour, however, was not all monotonous. In the preparation of the Naval tables, for instance, from time to time the names of certain ships, with their tonnage, armaments, date of launching and the like, would spring to the eye, and bring before the mind vivid pictures of events that stirred the world: one thought of gallant Jack Cornwall, standing to his gun; of the *Monmouth* steaming into the sunset with her full ship's company, blazing, crippled and helpless; of the *Emden*, roving the high seas like a privateer of the olden days; of the *Lion* and *Tiger*, foaming madly across the North Sea; and of those thousands of homes where still a voice is missed, a father, son or brother mourned, in many a land.

Other thoughts came, as the complex figures yielded up their secrets, and perhaps the most persistent was that of the steady development from year to year of types of ships, tonnage, horse-power and fighting equipment; therefore, the continual output of human energy required for the production of these great navies and the maintenance of the arsenals upon which they depend. One can picture the designs and details drafted and discussed, developed on thousands of drawing-boards, to the one end—stronger hulls, armour-plate having increased resistance, devices for the better foiling of torpedo attacks, projectiles with greater penetrating power. Figures connected with the engine-room remind one of the wonderful machinery, the huge, insatiable furnaces and boilers, the marvellous electrical installations. Remembering earlier types of engines in which enormous weight was required to produce comparatively little power, and then

considering the engines of a modern destroyer, giving tremendous propelling power for a minimum of weight, one's thoughts turn to the hopes and aspirations of the clever engineers whose prolonged study achieved such perfection. Improvements in valves and gears, shop drawings, patterns, castings, forgings, machine-work and erection, finally resulted in that unrivalled production—a modern quadruple-expansion engine, or a steam turbine. In the electrical and other fields similar progress has been made—lighting, hoists, appliances for rapid handling of ammunition, sensitive switch controls for signalling and manœuvring, freezing plant for cooling the magazines and preserving the provisions, wireless telegraphy and a hundred other things. All these combine, as a result of man's insight, patience and effort, to produce one of the most striking and wonderful monuments to human industry, ingenuity and mechanical genius—the battleship.

Nor must we forget the "fighting edge" which transforms this craft into a weapon—a floating citadel within which dwell the men who control the guns and handle the death-dealing shells. Our tables indicate a steady development of naval armament, particularly the heavy naval gun and torpedo tube, as shown in the returns made by order of Parliament to the British House of Commons. The Navy of the United States had the proud distinction of owning eight 16" guns, while the White Papers under review showed the British Navy as possessing sixteen—and then overtopping the U.S.A. with a number of breech-loaders of 18" bore.

The whole aspect of this Naval question leads to the query whether we have not arrived at that point in the "progress" of Western civilisation where the nation taking the highest place in that civilisation does so by

virtue of the extent of its war-fleets, the large calibre of its guns, and the weight of deadly projectiles.

The extent to which Naval Programmes and Armaments have absorbed the financial and productive resources of most European countries, and in late years of the United States and Japan, is demonstrated by the tables which follow and the expenditure figures in Section II.

These Naval tables, compiled mainly from returns made to the British House of Commons by the Admiralty, show the total number of fighting ships launched by each country during the twenty-one years from 1900 to 1920 inclusive; also the total tons displacement, total horse-power, and certain particulars about the armament. For the sake of convenience and conciseness the armament statistics have been divided into two columns, the first, called "heavy," for guns mainly of 4" to 15" bore (a few of 16" and 18" also), the second, called "light," for all arms below 4" bore, including light and quick-firing guns, and machine guns of smaller calibre. For simplicity in tabling, torpedo-tubes are included with the guns of larger calibre.

Vessels ordered to be broken up, or allocated to other Powers under the Treaties of Peace, are not taken into account in these tables, which are designed primarily to demonstrate the number and character of the ships built for fighting purposes and the extent of the outlay upon them. The money values, actual in British, are estimated for foreign ships, and are based on the approximate cost per ton displacement ruling at the periods in question and given by naval experts as the current cost. Navy estimates and expenditure on many actual ships of several countries have been consulted for the twenty-one years concerned, and the

cost per ton is based on this official information, the final figures being estimated after comparing notes with naval shipbuilders. It is, of course, impossible to obtain *absolute exactitude* without untold labour; even if this were achieved, it would be of little more use as far as it affects this book. Also, one may note here that the unwillingness or inability of many Government departments to afford such information on the question of values, even if it were available in concrete form, is too high a barrier to surmount.

Here, then, follows the story of Naval development in eight countries, told in bare, cold figures, compiled from over 1500 pages of returns issued by the Admiralty from 1902 to 1922.

I have thought it would be useful to reproduce, at the end of the book, all the figures which have gone to form these summarised tables for the purpose of leaving on record a true picture of this part of the problem, and of showing to what extent an international competition in Naval armaments becomes progressive, as well as for the benefit of those who may wish to study the subject more closely. However they are presented, whether in detail or summarised, these figures cannot fail to arouse serious thought and great alarm in the mind of any normal citizens, when they realise what an astonishing proportion of their productive energy has been expended in this way, and how a vicious circle of competition in fighting machines is hedging them in.

The next page gives summarised Tables showing the number of Fighting Ships, with their tonnage, horsepower and armaments, contributed by each of the eight nations under review to the world's fighting departments during the twenty-one years from 1900 to 1920 inclusive. (See Appendix for yearly details.)

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Country.	No. of Ships.	Tonnage.	Horse-power.	Heavy Armament.	Light Armament.
Great Britain . .	874	2,847,234	14,939,371	6,490	5,128
France . . . .	442	711,641	2,677,727	2,165	1,920
Russia . . . .	284	740,153	3,183,290	2,089	1,880
Germany . . . .	240	967,445	3,171,962	2,098	1,941
Italy . . . . .	227	353,951	1,807,790	1,189	837
Austria-Hungary	79	198,954	634,807	402	682
U.S.A. . . . .	532	1,387,319	9,333,505	6,586	2,428
Japan . . . . .	183	673,916	3,056,472	1,529	921
Totals . . . .	2,861	7,880,613	38,804,924	22,548	15,737

The next table summarises the contribution of all the eight nations together in each year of the period specified.

Year.	No. of Ships.	Tonnage.	Horse-power.	Heavy Armament.	Light Armament.
1900 . . . . .	87	256,067	714,902	601	995
1901 . . . . .	111	443,844	977,798	927	1,124
1902 . . . . .	105	256,222	757,246	639	889
1903 . . . . .	96	370,102	915,082	773	1,209
1904 . . . . .	120	448,412	1,031,466	907	1,440
1905 . . . . .	159	342,750	1,034,827	780	1,306
1906 . . . . .	170	340,313	941,496	881	1,057
1907 . . . . .	122	308,215	1,032,963	707	651
1908 . . . . .	102	276,461	729,460	621	535
1909 . . . . .	116	374,281	1,180,990	766	559
1910 . . . . .	100	301,996	1,261,029	705	404
1911 . . . . .	134	684,173	1,948,472	1,268	520
1912 . . . . .	105	434,942	1,619,699	833	445
1913 . . . . .	129	545,411	2,180,664	1,124	484
1914 . . . . .	63	270,874	1,272,800	611	337
1915 . . . . .	124	408,137	1,907,760	972	540
1916 . . . . .	173	371,188	2,334,360	1,019	658
1917 . . . . .	218	435,013	3,729,470	1,706	887
1918 . . . . .	297	418,877	6,130,720	3,038	989
1919 . . . . .	223	374,401	4,659,560	2,631	512
1920 . . . . .	107	218,934	2,444,160	1,039	196
Totals . . . .	2,861	7,880,613	38,804,924	22,548	15,737

This is not the place for arguments or polemics, but one cannot leave these figures without expressing some few fundamental thoughts. The hope that 1918 touched an everlasting high water mark will be echoed the world over.

The twin questions, what to do with this accumulation of ships and guns, and *how to do without them*, need the most careful and persistent examination. Schemes for dealing with them must be above all things practical. The hope that a great vision may suddenly convert men's minds, induce them at one stroke to cease the construction of fighting equipment and "damn the consequences," is unlikely to be realised, human nature being as it is.<sup>1</sup> The world has drifted past the agonies of the last war without this consummation, in spite of all the horror, the sorrow, the regret; but one aspect of the tables we have before us is noticeable, and perhaps heartening. The South American countries are doing without these great fleets and naval enterprises. It is worth while pausing to ask, "How and why are they doing so?"

In the present condition of international relations, and the attitude of the statesmen of European and Asiatic countries, and of the peoples they represent, there *appear* to be situations which no amount of good intentions and negotiations can at present solve. The determination, so very apparent in some quarters, to retain great fighting fleets is potent and definite.

That political second-sight which would unveil the truth that Treaties and agreements would be more equitable, and consequently are likely to prove more

<sup>1</sup> The above was drafted before the Washington Conference; what was done at that Conference is reviewed briefly in Part III, Section II.



stable when Peace Conferences are unshadowed by threats of armed force from any quarter, is but in embryo; and much ground must be covered before the nations are prepared to conclude Treaties on the moral merits of the case. While it must be ever necessary to uphold by threats of armed force a condition of *injustice* laid upon the vanquished by a victorious enemy, it may be truly affirmed that justice and even mercy meted out at such times by a world tribunal or an international Court, are calculated to set up conditions infinitely less prone to call for armaments for their maintenance.

But in the name of common sense, why such enormous tonnage and terrific armaments? Let us *all* reduce, and if we are prepared for nothing better, leave each one feeling as safe against the others as they were before!

The money value of the ships tabulated from 1900 to 1920 is very difficult to ascertain, but it has already been said that an approximate basis of valuation was arrived at which indicates that the sum of £605,000,000 has been actually expended upon these fighting craft and, as shown in Section II, an enormously greater sum on the Naval Departments which control them.

With these remarks we will leave the Naval programmes to consider other aspects of the question, none of which will perhaps so readily demonstrate the relative positions of the various nationalities, parties to this problem.

## SECTION II.—FINANCE, AND THE GROWTH OF WARLIKE EXPENDITURE

IN the years to come, when the evolution of human relationships has rendered it unnecessary for nations

to devote so much of their resources and money to "defence" of their homes, lands, possessions, trade, ideals and intentions, great wonder will be evoked at the tremendous precautions taken by the people of the twentieth century.

It may be that in a hundred or even fifty years' time the human mind will pause, aghast, when reading the tables in this chapter and wonder if the figures and those in the previous chapter are true.

In these days, plunged as we are in the very details of such things, it is not quite easy to obtain a perspective view of the position. So, to form a telling illustration of this side of the problem, I have tabled the "warlike" expenditure from 1900 to 1920 of most of the principal countries whose figures are obtainable.

These figures have been obtained from a great many sources, as noted under the tables of yearly details in the Appendix, and, in a few instances, where I finally failed to obtain official or authoritative particulars, it has been necessary to estimate them. Speaking broadly the figures are accurate enough, and any minor discrepancies here and there are not sufficiently important to weaken the very impressive illustration of the extent to which each country has contributed to the present position. A very important fact, betrayed by the tables themselves, is that the expenditure has been *competitive*, with the inevitable result of landing all the nations concerned into a financial and industrial morass, which threatens to become an economic impasse.

The tables in this chapter review the expenditure on the fighting departments of twelve European Powers, the United States and Japan. Information on this side of the subject is not so officially complete, for the

later years reviewed, as that dealing with ships, tonnage and horse-power given in the previous chapter.

The custom of recording warlike expenditure varies in different countries, and the results are not always comparable in the same terms. For example, Norway appears to include under the general title of "National Defence" all sums intended for warlike purposes, while Russia, Sweden, Denmark, France, Italy and other countries give separate figures for the Ministry of War and the Ministry of Marine, the latter comprising all Naval expenditure. The German Empire returns are classified in the official abstracts as "Maintenance of the Army," "Maintenance of the Navy"; and in addition separate figures are given for "Military Expeditions" to China and East and West Africa. All these expeditions have been bulked under one head. The Japanese figures are the total of Army and Navy "ordinary" and Army and Navy "extraordinary" outlay. Belgium records the "Ministry of War" expenditure, and Austria states the sums employed by the "Ministry for National Defence." Hungary up to 1912 shows separate outlays through the Ministry of War, and the United States returns are divided into "War Department—Salaries, Expenses, etc.," and "Navy Department—Salaries, Expenses, etc.," with separate returns for "Military Establishments" and "Navy Establishments," the four items added together forming the total warlike expenditure in the tables.

It may be fairly said, however, as a guide to readers, that all these figures, although denominated in differing ways, can be justifiably described as expended by the "fighting departments" of the nations concerned.

For purposes of comparison, all the money figures have been reduced at par to their equivalent in the common currency of the country in whose language each edition of this book is issued. In such cases the nominal "face" value is often in excess of the current value, it being impracticable to arrive at an *annual average* rate of current exchange.<sup>1</sup> Nevertheless, for comparative purposes these exchange values will serve us, representing as they do in actual amounts the standard of each country, but expressed in £ sterling in this book.

For additional interest, the amount of Public or National Debt for each country has been included; also the total expenditure for all other purposes, including Foreign Affairs, Home, Agriculture, Education, Public Works, Justice, Public Worship, Pensions, Commerce and Navigation, Reduction of Debt, Colonies, Audit, Posts and Telegraphs, State Railways, Science and Art, Labour, and Public Debt and Interest Services—the last-named two items mainly the result of the unproductive and unremunerative warlike expenditure piled up in earlier years and forming the bulk of the National Debts.

Although not strictly cogent to the subject of this book, it seems not out of place to mention the fact that the Debt of Sweden has been entirely, and of Norway almost wholly incurred in the construction of State railways, while those of Belgium and Denmark have been very largely contracted for the same purpose. The Debts of all the other countries reviewed, excepting Great Britain, France and the United States of

<sup>1</sup> It has been finally decided to give the figures in £ sterling in all editions. A table of exchange rates is given in the Appendix.

America, have also been increased to a smaller extent by expenditure upon State railways, and the like. Therefore it may be said that a *very minor* portion of these Debts represents valuable assets in several countries.

Here, then, follow summarised tables recording the "warlike" and "all other" expenditure of fourteen principal countries, together with their National Debts during the twenty-one years from 1900 to 1920 inclusive.

Other countries would have been tabled if figures had been available. The amounts are all expressed in £ sterling at par rate of exchange.

The detailed figures forming the basis of these summaries may seem too extensive and complex for the general reader and may rarely be read through, but as they have been prepared and checked with great care, and in the belief that such particularised information in a condensed form may be of service to students and speakers, or even to men of public affairs, I have incorporated them in full, together with references to the sources of information, at the end of the present issue of this book. Their full significance will become more apparent after a study of the two following summaries, which show first the total amount contributed by each country for the period under review, and second the combined sums expended by all the fourteen countries for each year.

In the meantime we must observe that the expenditure on fighting and defence during the period reviewed has left us in a financial situation which, if *at all realised* by the people of all countries who have worked for and found the money, must be regarded as appalling. The combined National Debts of these fourteen

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countries amounted to £4,003,445,153 in 1900, and had risen to £53,044,027,778 in 1920, an increase of £49,030,582,625 in twenty-one years.

Summarised Table showing the total expenditure by each of the fourteen countries separately for the whole of the period 1900–1920 inclusive, through their fighting or defence departments and Ministries, also for all other purposes. The amounts of the National Debts for each country at the beginning and end of the period are also given.

Country.	Warlike Expenditure.	All other Expenditure.	National Debts 1900.	National Debts 1920.
	£	£	£	£
Great Britain .	10,198,938,468	3,604,390,776	638,919,932	7,875,641,961
France . . .	7,606,583,670	3,777,889,840	1,033,549,902	11,380,960,000
Russia . . .	14,271,092,408	6,103,968,006	653,748,000	3,361,572,000
German Empire	7,887,374,721	10,880,051,684	119,037,000	11,681,912,000
Italy . . .	4,847,121,351	3,266,898,646	537,230,000	2,902,975,416
Austria . . .	8,781,061,849	2,205,872,417	367,498,000	6,738,000,000
Hungary . . .	1,637,189,523	2,942,075,714	215,860,000	2,426,717,375
U.S.A. . . .	5,230,425,727	11,322,859,322	230,773,000	5,062,083,330
Japan . . .	371,863,392	785,160,442	49,619,328	284,943,252
Belgium . . .	332,424,852	421,489,246	108,341,966	1,000,828,386
Norway . . .	32,604,101	220,592,047	12,707,000	62,778,000
Sweden . . .	141,592,165	313,542,605	18,772,152	83,140,247
Denmark . . .	52,200,233	177,550,862	7,530,143	51,458,894
Bulgaria . . .	143,687,658	226,633,030	9,858,730	131,016,917
Totals for the period . .	61,534,155,196	46,249,174,637	4,003,445,153	53,044,027,778

Refer to Appendix for details.

Summarised Table showing the total expenditure by all the fourteen countries together through their fighting or defence departments and Ministries, also for all other purposes, for each year in the twenty-one years 1900–1920 inclusive. The combined National Debts for the corresponding years (approximately) are also given.

Year.	Warlike Expenditure.	All other Expenditure.	Combined National Debts. <sup>1</sup>
	£	£	£
1900 . . .	284,618,820	705,319,779	4,003,445,153
1901 . . .	340,693,493	704,863,158	4,099,101,388
1902 . . .	334,477,626	758,716,267	4,202,489,039
1903 . . .	315,597,790	764,268,188	4,238,202,573
1904 . . .	287,665,591	835,335,393	4,299,601,395
1905 . . .	297,174,066	894,903,045	4,579,395,168
1906 . . .	310,546,320	941,050,347	4,690,107,801
1907 . . .	306,524,874	926,157,703	4,711,631,159
1908 . . .	333,643,671	967,369,819	4,750,578,511
1909 . . .	350,201,137	1,033,461,598	4,840,637,276
1910 . . .	356,736,800	1,016,751,456	4,995,345,378
1911 . . .	376,041,436	1,055,995,729	4,974,089,362
1912 . . .	411,511,018	1,120,977,389	4,988,933,040
1913 . . .	479,846,177	1,093,701,078	5,076,504,542
1914 . . .	1,267,692,412	1,149,358,374	5,749,706,332
1915 . . .	3,437,998,982	1,287,064,350	8,467,500,894
1916 . . .	7,213,672,647	1,701,042,724	14,191,089,808
1917 . . .	10,363,316,610	2,829,281,044	22,299,539,762
1918 . . .	13,212,004,422	5,790,084,507	33,460,023,068
1919 . . .	14,242,644,850	9,453,523,133	46,126,020,390
1920 . . .	7,011,546,454	11,219,949,556	53,044,027,778
Totals for the period . .	61,534,155,196	46,249,174,637	

It will be very soon observed by anyone interested in the question of foreign exchange that the phenomenal variations in international rates since 1914 have raised some considerable queries as to the best procedure to be followed in constructing comparative tables of figures. The rise above normal of the currency of the United States and Spain is typical of the difficulty on the one side, and the phenomenal depreciation of

<sup>1</sup> The official practice of stating these Debts varies. Most of the figures relate to the Fiscal Years, but in some few cases the figures for the Calendar Years only are ascertainable. Refer to Appendix for details.

the currency of Russia, Germany, Austria, Hungary and Belgium, and in a lesser degree France and Italy, demonstrates greater difficulties still on the other side. The conclusion reached, however, was that the only logical line to take was to maintain par values throughout the tables.

It will be seen that one effect of this has been apparently to augment the amounts in sterling of the expenditure and Debts of those countries which have suffered from the amazing depreciation of their currencies. For those who are interested in ascertaining the values in sterling of the various countries at current rates of exchange, I have added a table in the appendix giving the rates of exchange of all the countries reviewed in the tables, as at about the middle of each calendar year. This, of course, does not give finality, because the rates of exchange have varied so enormously over even a few months or weeks, or even days in some cases, that it is quite impracticable to strike an average annual rate.

This period of history is of great interest, the figures recorded demonstrating the stupendous effort that these fourteen nations have made to render themselves safe. According to these figures, over sixty-one thousand millions have been spent by the fighting departments, and forty-six thousand millions for all other purposes. The latter includes large sums for interest on previous accumulations of war debt, and, recently, heavy pensions payments, both properly chargeable to warlike expenditure. A careful study of such items demonstrates that, on a conservative basis, the fighting proclivities of these peoples have absorbed seventy per cent. of the money collected from them by taxation. Their "patriotism" and



exertions to render themselves safe have resulted during a period of twenty-one years in multiplying their aggregate public debts approximately by thirteen. If the reasons from time to time adduced in support of this expenditure by the natural men and ordinary citizens and their Governments had been sound, one is entitled to expect an immunity from war found in no other period of modern history. What do we find? Some of the results are given in the next chapter. But one of the most remarkable developments is shown in the next chapter but one, where it is made evident that the efforts put forth from 1900 to 1914 culminated not in peace and safety and progress, but in laying on the human race the need for a further special—almost superhuman—expenditure of vitality, resulting in a cataclysm unparalleled. What is the conclusion reached by public men? One quotation shall suffice from a report of a speech in December 1922, of the man who was Secretary of State for Foreign Affairs in Great Britain at the outbreak of War in 1914 :<sup>1</sup>

The question he put to his audience was :

“What was the underlying cause which had been working for years to bring about war? From one aspect it was, in his opinion, the great growth of armaments before the War. Before the War it was often said that great armaments were a protection against war. Now, if we were wiser after the event, we should never say that again. They might be a protection against defeat; they were not a protection against war. The moral of the last Great War, and the state of Europe before it, was that great armaments did not prevent war ;

<sup>1</sup> Viscount Grey, at Queen's Hall, London, December 19, 1922.

they brought war about. That was one lesson. Another lesson was that if war came on the modern scale no victory would enable the conqueror to escape from the awful suffering which war caused. And the next war, if it ever came, would be far more terrible than the last. Even now it was doubtful—perhaps he would not be as pessimistic as that—but it was not absolutely assured that Europe would recover from the War. He thought, however, it was certain that if there were such another war civilisation would not recover from it. The moral of it all was, that we must apply the lessons of the War and set to work to make war impossible.”

So if this be true—and there can be no *real* doubt about it—we must all seek some other way of securing safety and progress.

### SECTION III.—CASUALTIES, LOSSES AND DAMAGES CAUSED BY THE GREAT WORLD WAR OF 1914–1918

ON July 31, 1908, the seventeenth Universal Congress of Peace was held in London. Although this Congress was the annual gathering of delegates from Voluntary Peace Societies in many parts of the world, the British Government marked the occasion in an unprecedented manner by offering its hospitality and banqueting the delegates at the Hotel Cecil.

As one of the guests at that assembly I heard Mr. Asquith (then Prime Minister) deliver a remarkable address on the theme “Do Armaments safeguard Peace?” After dwelling upon the mechanism of destruction, particularly mentioning the increase in the displacement of battleships and the growth of their general armament to hitherto unheard-of power,

he said: "These things, ladies and gentlemen, are intended to be used. They are not accumulated, and do not exist, for ornament and display. They are intended to be used, and at some moment, by the sudden outburst possibly of an accidental fit of passion or temper, they will be let loose upon the world."

On August 4, 1914, this prophecy came true. These great fleets, upon and below the waters of the oceans, were unleashed by the will of man upon each other, and upon the merchant shipping and fishing craft of more than half the world.

By thousands they lie on the ocean floor to-day—battleships, cruisers, liners, trading vessels, colliers, hospital ships, the humble fishing-boat—sunk by gunfire, mines and torpedoes, often without warning, or destroyed in action after taking toll of the enemy. The list alone is appalling, even read coolly without the accompaniments of flame and wounds and sudden death inevitably present. The curt Government records and the journals of the shipping industry suffice, when read intelligently, to drive home one of the principal factors in the problem of marine armaments. From August 4, 1914 to November 11, 1918 about 50,000 lives were lost through war at sea—officers and men of navies and merchant ships; gallant fellows, young and strong for the most part, for whom death came too soon.

We come now to the more formal aspect of this part of our story—the presentation, in unemotional figures and facts, of the losses caused by one war. Upon these figures and facts, as upon a framework, let our minds as we read construct their true significance,

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their message of waste and sorrow and "might-have-been."

The British Navy lost 254 ships, the German Navy 355, the Russian Navy 66, the French Navy 50, and the other navies involved about 100 ships between them, making in all over 800 fighting vessels lost by the navies of all countries. Mercantile vessels to the number of over 5,500 were also sunk. The tables which follow give some details of tonnage, horse-power and armaments of the naval craft of all countries, and then the naval auxiliaries and merchant, steam and fishing craft lost in the Great War.

TABLE SHOWING LOSSES OF THE BRITISH NAVY, 1914-1918

Class.	1914.	1915.	1916.	1917.	1918.	Total Lost.	Total Tonnage.	Total Horse-power.	Armament.	
									Heavy.	Light.
Battleships . . .	2	6	2	2	1	13	200,735	222,000	285	254
Battle Cruisers and Cruisers . . .	6	2	7	1	—	16	221,300	455,500	287	287
Light Cruisers . . .	3	—	3	—	6	12	46,255	180,000	135	107
Torpedo G.B.'s, River G.B.'s, Monitors, Sloops, etc. . .	2	2	5	12	10	31	40,690	66,100	70	85
Flotilla Leaders, T.B.D.'s and Torpedo Boats . .	1	13	19	25	20	78	59,479	1,299,450	336	291
Submarines . . .	4	10	12	7	21	54	43,649	81,080	205	4
Aircraft Carriers, Mine-layers, etc. .	1	1	—	3	2	7	45,714	89,500	51	40
Armed Merchant and Boarding Cruisers and Coastal Boats .	1	6	4	13	19	43	203,033	*100,000	—	*73
Summary . . .	20	40	52	63	79	254	860,855	2,493,630	1,369	1,141

This table is compiled from British Admiralty Return No. 200 of 1919 and the Admiralty White Papers of 1900 to 1921 inclusive, except those marked \*, which are estimated.

Losses in navies other than British were also extremely heavy, particularly in the case of Germany, with her total war loss of 355 ships amounting to a tonnage of 314,508. Besides the vessels themselves, the naval armaments Germany lost were 1351 guns of over 4" bore and torpedo tubes, and 708 lighter guns, machine guns, quick-firers, etc. It has been impossible to discover any official records of foreign naval losses, but the tables I have compiled from information derived from various sources are sufficiently accurate to give a close idea of the aggregate naval loss. I have classified them nationally with a view to providing a general comparison.

TABLE SHOWING LOSSES BY NAVIES OTHER THAN BRITISH, 1914-1918

Name of Country.	Battleships, Battle Cruisers, Cruisers and Light Cruisers.	Gunboats, Coast Defence Ships, Monitors and Sloops.	Fleet-Admirals, Torpedo Boats and Torpedo Boat Destroyers.	Submarines, Aircraft Carriers, Patrol Boats and Mine-layers.	Armed Merchant Cruisers, Boarding Steamers and Motor-boats.	Total Numbers Lost.	Total Tonnage.	Total Horse-power.	No. of Heavy Guns (4" and upwards) and Torpedo Tubes.	No. of Lighter Guns, Machine-guns, etc.
France . . .	9	3	18	16	4	50	136,721	395,330	265	385
Russia . . .	0	21	34	34	66	109,308	308,580	309	1,351	1,795
Germany . . .	25	122	197	9	355	314,508	1,887,208	1,351	1,351	1,795
Italy . . .	5	13	9	1	31	79,772	309,660	179	179	199
Austria . . .	5	4	8	8	—	25	67,309	176,870	135	121
Hungary . . .	1	1	1	1	—	10	16,823	39,090	23	27
U.S.A. . . .	5	—	2	—	—	8	47,096	104,580	104	51
Japan . . .	—	—	—	—	—	—	—	—	—	—
Summary . . .	56	21	186	265	17	545	772,037	3,221,968	2,371	1,669

\* Partly estimated.

In addition to the above, other losses took place of which few particulars are available. Turkey, for

TABLE SHOWING LOSSES OF BRITISH AUXILIARY VESSELS,  
1914-1918

Class.	Period.					Total Number Lost.	Total Tonnage Lost.
	Aug. 4, 1914, to Dec. 31, 1914.	1915.	1916.	1917.	Jan. 1, 1918, to Nov. 11, 1918.		
	No.	No.	No.	No.	No.	No.	Tons.
Hospital Ships . .	1	—	—	—	1	2	15,199
Frozen-meat Ship	—	—	—	—	1	1	1,730
Store-carriers . .	—	1	1	2	—	4	4,779
Ammunition Ship	—	1	—	—	—	1	2,030
Mine-carriers . .	—	—	—	—	2	2	4,496
Mine-sweepers . .	—	5	3	7	3	{ 5 13	3,990 7,758
Auxiliary Patrol Paddlers . . .	—	—	2	—	—	2	679
Fleet Messengers	—	3	1	4	1	9	11,602
Commissioned Escort Ships . .	—	—	—	2	1	3	22,082
Miscellaneous . .	—	—	—	1	2	3	4,698
Colliers . . . .	2	33	38	115	56	244	714,613
Oilers . . . . .	—	8	6	21	9	44	216,445
Special Service Ships . . . . .	—	—	5	17	7	29	35,760
Tugs . . . . .	—	3	—	1	10	14	3,593
Yachts . . . . .	—	5	5	3	—	13	7,179
Whalers . . . . .	—	—	—	—	2	2	347
Admiralty Trawl- ers . . . . .	1	2	2	5	8	18	4,715
Hired Trawlers . .	13	50	58	86	39	246	56,300
Hired Drifters . .	2	13	40	42	33	130	10,809
Motor Launches . .	—	—	6	7	11	24	864
Motor Boats . . .	—	3	3	—	—	6	61
Totals . . . . .	19	127	170	313	186	815	1,129,733

instance, lost four battleships and cruisers and thirteen other craft; Portugal lost one gunboat, Roumania one torpedo boat, and Greece one destroyer. The totals already given include the few naval auxiliary vessels lost by navies other than British; but for the British Navy the auxiliary losses are shown in Admiralty Return No. 200, 1919. I reproduce this in order that it may be seen to what extent, in addition to mercantile vessels proper, the British Mercantile Marine was drawn upon as a direct aid to the fighting fleet. Adding the 815 ships tabled below to the 254 war vessels lost, we find that Great Britain's naval service, regular and auxiliary, contributed a total of 1069 craft of all kinds.

The horse-power figures, relating to these vessels and the small number of guns lost with them are not given in the return, but their aggregate horse-power has been computed by marine engineers and others at about 680,000, and the number of guns at 1125, all under 4" bore. The Secretary of the Admiralty states in reply to inquiries that official information cannot be furnished.

The losses of fighting and auxiliary ships of the navies of all the countries concerned were of course without precedent; but the greatest outstanding feature of the War is undoubtedly the enormous number of the merchant and fishing vessels sunk. Mercantile ships to the total of about 5000, carrying the flags of twenty different nations, as well as 591 ships claiming no nationality, were sent to the bottom. To give the exact number belonging to each nation has been impossible; 4091 of those exclusively employed in mercantile marine work, however, were destroyed under the following flags :

CLASSIFICATION OF PART OF MERCANTILE SHIPS LOST,  
1914-1918.

Nationality.	No. of Ships.	Gross Tonnage.
British . . . . .	2,038	6,797,802
French . . . . .	213	651,583
Danish . . . . .	126	205,002
Russian . . . . .	76	138,847
Japanese . . . . .	33	119,737
Italian . . . . .	228	720,064
Turkish . . . . .	44	60,488
German . . . . .	188	319,552
Austrian . . . . .	14	31,553
Greek . . . . .	115	304,992
Dutch . . . . .	74	194,483
American . . . . .	93	372,892
Swedish . . . . .	124	192,807
Polish . . . . .	15	34,325
Portuguese . . . . .	15	51,755
Spanish . . . . .	70	160,383
Belgian . . . . .	32	71,461
Brazilian . . . . .	6	17,132
Argentine . . . . .	4	6,086
Roumanian . . . . .	1	3,688
Uruguay . . . . .	1	2,407
No Nationality . . . . .	591	976,333
	4,091	11,433,372

About a further 1500 ships appear to have been lost (see p. 49), but I have not been able to obtain details sufficient for national classification. Approximately, however, 810 appear to be British and 740 foreign.

The above condensed tables are compiled from White Paper Returns issued by the Admiralty, and from the Mercantile War Loss Book published by *Syren and Shipping*. To attempt to give the *real* value of



these ships at the *time of loss* is not practicable, and I have so far been unsuccessful in obtaining any information which would justify the stating of a figure on that basis.

I have, however, been fortunate enough to have an interview with a member of "Lloyd's," who is a high authority on the question of settlement of claims for losses on ships, particularly during the War period. At this interview it became at once apparent that owing to the rapidly changing values of ships, due to the rise in value of tonnage and to the conditions under which they were used, it was impossible either to fix on a reliable figure, or to collect actual records of the amounts of claims paid upon all these ships. It was therefore judged that the best method of placing a value upon the lost shipping would be to take the vessels at their approximate *pre-war value*, which of course is very much lower than the value which might have been put upon them at any time during the War. The figure thus arrived at is £138,000,000.

As to the cargoes which went down with these ships, no calculated valuation can be made, but it is my friend's opinion that their money value runs into hundreds of millions sterling.

The previous list, divided into ships of different countries, is not a complete record of all mercantile ships lost, and I find by a statement issued by the Admiralty in 1918, the table from which is appended, that the total losses of merchant vessels by enemy action and marine risk amounted to over 15,000,000 tons. The total *number* of ships covered by this table is not stated officially, but is approximately 5500.

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STATEMENT SHOWING BRITISH AND WORLD'S MERCHANT TONNAGE LOST THROUGH ENEMY ACTION AND MARINE RISK SINCE THE OUTBREAK OF WAR, 1914.

Period.	British.	Foreign.	Total for World.
	Gross Tons.	Gross Tons.	Gross Tons.
1914.			
August and September . . . . .	341,824	85,947	427,771
4th Quarter . . . . .	154,728	126,688	281,416
1915.			
1st Quarter . . . . .	215,905	104,542	320,447
2nd „ . . . . .	223,676	156,743	380,419
3rd „ . . . . .	356,659	172,822	529,481
4th „ . . . . .	307,139	187,234	494,373
1916.			
1st Quarter . . . . .	325,237	198,958	524,195
2nd „ . . . . .	270,690	251,599	522,289
3rd „ . . . . .	284,358	307,681	592,039
4th „ . . . . .	617,563	551,780	1,159,343
1917.			
1st Quarter . . . . .	911,840	707,533	1,619,373
2nd „ . . . . .	1,361,870	875,064	2,236,934
3rd „ . . . . .	952,938	541,535	1,494,473
4th „ . . . . .	782,889	489,954	1,272,843
1918.			
1st Quarter . . . . .	697,668	445,668	1,143,336
2nd „ . . . . .	630,862	331,145	962,007
3rd „ . . . . .	512,030	403,483	915,513
October . . . . .	83,952	93,582	177,534
Totals . . . . .	9,031,828	6,021,958	15,053,786

This table shows the course of events until the end of October 1918; but after that date there were further losses amounting to 12,000 tons British and 2000 tons foreign.

In endeavouring to arrive at the value of all these mercantile ships, I have made inquiries among under-

writers, insurance brokers, ship brokers, merchants, and others with expert knowledge of the subject in London, Liverpool and Glasgow. A consensus of opinion of men in the shipping world upon the capital value of the ships thus lost, places the average price at from 225 to 250 millions sterling; it was estimated that ships and cargoes together might easily reach a total figure at time of loss of 400 millions. This must be taken as an approximate amount, arrived at after prolonged discussion and investigation, but without the basis of any authoritative or official figures. Obviously actual commercial figures are out of the question; it will be realised that the losses include expensively equipped passenger steamers of large tonnage, such as the *Lusitania* of 30,396 tons, torpedoed by the Germans, with a death-roll of 1198. The majority of the vessels, however, range from 1500 to 3000 or 4000 tons. Smaller boats, such as pilot cutters, drifters, trawlers, and fishing craft generally, account for a smaller proportion of tonnage, but add considerably to the total number of vessels sunk.

It hardly enters into the scope of this work to analyse or enlarge upon the manner in which these vessels were lost and by what agency. But it is of some interest to note that as far as British merchant ships are concerned by far the greater part were sunk by submarine attack, no fewer than 2099, with a tonnage of 6,635,059 (out of a total of 2479 British ships lost with a total tonnage of 7,759,090), being destroyed by this means. The loss of life on British merchant vessels is officially stated as 14,287, but fishing fleets also suffered very heavily, and a total of 675 British fishing vessels lost is given, with a tonnage of over 71,000 and 437 lives lost. Those who wish for further details on

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these points should consult the Admiralty Return No. 199 made to the House of Commons in August 1919, and White Papers C.D. 9221 of 1918, C.M.D. 98 of 1919, both presented to Parliament by command of His Majesty.

Let us endeavour now, by a brief condensed summary, to visualise the terrible total :

### GENERAL SUMMARY.

	No. of Ships.	Approx. Tonnage.	Approx. H.P.	Torpedo Tubes and Heavy Guns over 4".	Lighter Guns.
British Navy, War Vessels . . . .	254	860,000	2,493,630	1,369	1,141
Foreign Navies, War and Auxili- ary Vessels to- gether . . . .	545	772,037	3,221,968	2,371	1,669
British Navy Auxiliaries . .	815	1,129,733	680,000	—	1,125
British Mercantile Marine(all types)	2,848	9,031,828	7,775,000	—	—
Foreign Mercan- tile Marine . .	2,793	6,021,958	4,517,000	—	—
Summary .	7,255	17,816,411	18,687,598	3,740	3,935

The approximate weight of timber, steel, iron and other metals which has gone to the bottom of the sea in the form of ships of war and of commerce approaches the astonishing figure of 20,000,000 tons. In pre-war days the amount of employment provided by the construction and equipment of these ships and the production of the requisite materials would be the regular labour for 100 years of 660,000 smelters, founders,

engineers, fitters, riveters, platers, boiler-makers, pattern-makers, copper-smiths, electricians, carpenters sheet-metal workers, joiners and the like.

I cannot persuade any naval shipbuilder to commit himself even to an approximation, or to hazard a calculation of the value of the vanished navies and mercantile fleets. The only basis, therefore, upon which there seems to be any dependence in suggesting a value is that of the approximate *pre-war* cost of a number of leading ships of different navies. A series of calculations from these data results in a figure which, when added to the estimated value of the mercantile losses, aggregated as already described, produces the enormous sum total of £585,794,360.

The value of the material and labour thus dissipated without hope of recovery, if replaced at *present* prices, is estimated to exceed £850,000,000 sterling; so that, taking interest at the low industrial figure of 6 per cent. per annum on the capital sum, it will be seen that if all these ships are replaced, a permanent burden of £51,000,000 per annum must be borne in the future by the products of our industry in one form or another. It is to be hoped that the naval portion will only be replaced to a very small extent.

So much for marine losses, but what of the value of the actual damage done on land to the houses, property and territory of the inhabitants of Europe?

There are no figures which I have been able to discover giving any financial measure of this damage, but a great many details have been collected privately by the Reparations Commission. This body, on April 28, 1921, notified the German Government of its finding that the total damage for which Germany was responsible amounted to 132,000,000,000 gold

marks, equalling about £6,460,000,000. It is certain that this sum of money, huge though it may be, is insufficient to repair the actual damages caused by the War. The Secretary of the Reparations Commission informs me that the documents relating to the extent of the damages suffered through the War by the different Allied countries, which served as a basis for the determination of the amount of the damages, are held as secret and cannot be made public. For the present then one can only state the point in this approximate manner, hoping that in time, as with many other subjects in this book, fuller information may be forthcoming.

There are, of course, a great many other damages, suffered by both the Allies and the Central European Powers, particulars of which I have not been able to ascertain. I find it has been estimated by Mr. Ernest L. Bogart, Professor of Economics at the University of Illinois, that the property losses alone amount to £6,000,000,000 or thereabouts.

A good many efforts have been made to ascertain what was the total *direct* cost of the Great War in money expressly expended upon it, and the following figures, collected from various sources, indicate the approximate direct expenditure of the chief participants:

Great Britain . . . .	£6,418,000,000	} These are expressed in £ sterling at par rate of ex- change.
France . . . . .	£5,200,000,000	
Russia . . . . .	£5,060,000,000	
German Empire . . . .	£8,300,000,000	
Italy . . . . .	£2,400,000,000	
Austria-Hungary . . . .	£4,100,000,000	
U.S.A. . . . .	£2,600,000,000	
Other countries and neutrals . . . . .	£1,370,000,000	

The greater part of these figures have been obtained from the speech of the late Sir Edward Holden at

the annual meeting of the London City and Midland Bank of January 29, 1919, and from the *Statesman's Year Book*, while a few are estimated from the carefully selected information in Professor Bogart's book, *Preliminary Economic Studies of the War*.<sup>1</sup> The material losses, damages and costs by sea, air and land were so enormous that the figures almost lose significance, but the appalling loss of life may bring more vividly to our perceptions the tragedy, following upon all the years of preparation, now lying behind the figures.

It must be remembered that most of the casualties were men of military age, the most active and capable obtainable in their day and generation. Who can value them or appraise the loss the world has suffered in these potential workers, breadwinners, thinkers and organisers?

And how many bruised and bereaved hearts have each of them left behind? Three, four, half-a-dozen or more, and all with hopes and aspirations, loving cares and economies, education and training brought to dust and ashes.

Speaking in the House of Commons on May 4, 1921, Mr. Austen Chamberlain gave a list of the casualties of the principal countries from August 4, 1914 to the end of 1918. Where I have been unable to obtain actual figures direct from the officials of the countries named in the table on p. 58, I have used those quoted

<sup>1</sup> The author of that work appears to have gone further than anyone else in a determined effort to estimate the *total* cost of the Great World War, and with his permission I reproduce in the Appendix the table on the concluding page of his book, expressing the figures in £ sterling at the rate of exchange at which his calculations appear to have been made. His total estimate of combined direct and indirect costs is over £70,000,000,000.

in the speech just referred to, and in some cases the numbers are estimated upon general information.

There is obviously no real means of correctly estimating these losses *materially*, but I have made an effort to estimate the loss of "Human Capital," and it is also of great interest to note the official capitalised values of the War Pensions Liabilities in some countries. Under this head in the United Kingdom, the commitments, excluding cost of administration, have been estimated by the Government actuary at £1,400,000,000. In addition to that, other schemes, such as Education, Training, Resettlement, etc., to the extent of £112,000,000, have been undertaken exclusively for the benefit of ex-officers and men.

Official figures have also been received for Australia, New Zealand, France and U.S.A. The amount of the capitalised pensionary liabilities for the last-named seems high in comparison with others, but this has been explained to me by the Military Attaché of the American Embassy in London, who says, "I must agree with you that there is apparently a discrepancy when one considers the American War Pensions Liabilities. These are, however, in the nature of War Insurance Policies, which are paid off in fourteen years, so that while at the present our capitalised sum is nearly equivalent to the French, it should be entirely paid off in the course of fourteen years. This method of pensioning is a new departure, and has been instituted in an effort to do away with war pensions through a long series of years."

A lengthy correspondence has not yet produced figures for the countries opposite which estimated figures marked <sup>17</sup> appear. The India Office says: ". . . the amount has not yet been estimated, and at



present an estimate cannot be furnished." The German and Italian Embassies have kindly promised the figures, but they are not yet ascertainable, and I am still in correspondence with several other countries. If it were possible to arrive at a total *official* capitalised value of War Pensionary Liabilities for all these countries, the result would have been of great interest, but hitherto this has not become practicable. To arrive at an approximation is extremely complicated, and certain assumptions have been necessary, such as the existence of a liability at all either legal or moral, and the differences in human value in the several countries whose figures I have estimated. On the latter point a partial basis for comparison is discernible, garnered from official pensions information, in the published scales fixed by several countries for an equal degree of disablement.

Expressed in £ sterling at par rate of exchange the approximate full scale allowances for a totally disabled man with wife and three children work out about as follows :

Canada £197.	New Zealand £177.	France £87.
Australia £196.	Great Britain £109.	Germany £65.
U.S.A. £180.	Italy £104.	Austria £25.

These provisions are varied by special circumstances in many cases, but may justifiably be used for purpose of comparison, and they enable a fair *estimate* to be made in the cases of Italy, Germany and Austria-Hungary. But quite naturally even such comparative figures are absent for most of the other countries whose official capital valuation is lacking just now, and therefore some judgment has been exercised in assuming certain average pensionary values.

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SUMMARY OF CASUALTIES IN THE GREAT WAR OF 1914-1918, with the approximate Capital Value of War Pensions Liabilities. Also an appraisalment of the value of "Human Capital" lost (see p. 60). †

Country.	No. of Dead.	No. of Wounded.	Approximate Capital Value of War Pensions Liabilities as at about 1920-1921.	Estimated loss in "Human Capital" or "Social Value" by Deaths. <sup>14</sup>
			£	£
Great Britain . .	743,702 <sup>1</sup>	1,603,262 <sup>1</sup>	1,512,000,000 <sup>1</sup>	615,785,256
Canada . . . .	56,625 <sup>2</sup>	149,732 <sup>2</sup>	94,750,000 <sup>17</sup>	85,246,860
Australia . . .	59,330 <sup>3</sup>	152,171 <sup>3</sup>	96,000,000 <sup>3</sup>	89,318,600
New Zealand . .	16,688 <sup>4</sup>	41,315 <sup>4</sup>	37,739,000 <sup>5</sup>	22,518,800
S. Africa, Newfoundland, etc.	8,832 <sup>6</sup>	15,153 <sup>6</sup>	19,000,000 <sup>7</sup>	11,447,050
India . . . . .	61,898 <sup>8</sup>	70,859 <sup>8</sup>	16,928,906 <sup>17</sup>	12,279,600
France . . . . .	1,385,300 <sup>9</sup>	3,463,250 <sup>9</sup>	2,435,488,800 <sup>17</sup>	803,474,000
Russia . . . . .	1,700,000 <sup>10</sup>	4,950,000 <sup>10</sup>	1,075,500,000 <sup>17</sup>	686,800,000
Belgium . . . . .	38,172 <sup>11</sup>	44,686 <sup>11</sup>	118,216,046 <sup>17</sup>	19,524,264
Italy . . . . .	460,000 <sup>12</sup>	947,000 <sup>12</sup>	832,325,000 <sup>17</sup>	202,400,000
Portugal . . . .	7,222 <sup>13</sup>	13,751 <sup>13</sup>	10,486,500 <sup>17</sup>	3,697,664
Roumania . . . .	335,706 <sup>14</sup>	504,000 <sup>14</sup>	118,500,000 <sup>17</sup>	167,553,000
Serbia . . . . .	127,535 <sup>15</sup>	133,148 <sup>15</sup>	36,732,600 <sup>17</sup>	63,767,500
U.S.A. . . . .	115,600 <sup>16</sup>	205,690 <sup>16</sup>	2,000,000,000 <sup>13,14</sup>	5,086,400
Germany . . . .	2,050,466 <sup>16</sup>	4,202,028 <sup>16</sup>	2,340,000,000 <sup>17</sup>	1,886,115,016
Austria Hungary .	1,200,000 <sup>16</sup>	3,620,000 <sup>16</sup>	679,200,000 <sup>17</sup>	652,800,000
Bulgaria . . . .	201,000 <sup>15</sup>	152,000 <sup>15</sup>	45,345,000 <sup>17</sup>	109,344,000
Turkey . . . . .	300,000 <sup>16</sup>	570,000 <sup>16</sup>	122,600,000 <sup>17</sup>	120,000,000
	8,847,024	20,927,459	11,518,582,000	5,057,457,510

† The chief sources of information from which these figures are derived are numbered in the above table as follows: <sup>1</sup> British Government Actuary. <sup>2</sup> High Commissioner for Canada. <sup>3</sup> Official Secretary, Australia House, London. <sup>4</sup> High Commissioner, Dominion of New Zealand, London. <sup>5</sup> Calculated from Official information supplied by N.Z. Pensions Department. <sup>6</sup> High Commissioner for Union of South Africa, etc. <sup>7</sup> Partly calculated and partly from information supplied by High Commissioner. <sup>8</sup> India Office, London. <sup>9</sup> From figures and Annual Values supplied by Agence Financière du Gouvernement Français. <sup>10</sup> *Statesman's Year Book*, 1919. <sup>11</sup> Belgian Official estimate supplied by courtesy of British Foreign Office, London. <sup>12</sup> Italian Ambassador in London. <sup>13</sup> American Embassy in London. <sup>14</sup> Veterans Corps, Washington, D.C. <sup>15</sup> Bulgarian Legation in London. <sup>16</sup> Austen Chamberlain in House of Commons, May 4, 1921. <sup>17</sup> Estimated on averages, etc. <sup>18</sup> Estimated from tables on pages 57 and 60.

In addition to the above, the numbers of missing and prisoners were returned as 6,478,000, many of the former, probably dead, and of the latter no doubt eventually finding their way back to their own lands.

The method of approximating the Capital Value of War Pensions Liabilities in some countries is open to much criticism, but there is not, up to the present, any actuarial valuation made by such countries, and, in the absence of definite data concerning pensions expenditure in any one year, the average method has perforce been adopted to enable anything like an approximate total value to be ascertained.

In regard to some of the countries averaged it has been said that whatever scale were adopted the payments could not be made, and, therefore, any actuarial valuation would be merely fictitious. This may be a fact—I am offering no opinion about it—but I may be pardoned for taking the line that the value of a human life of whatever nationality may be justifiably assumed, for this purpose, to be at least equal to that of a subject of a neighbouring State which does publish some particulars of its regular pensionary allowances, or which has made an actuarial valuation.

The fourth column of the table on page 58 is an attempt to appraise the Economic loss occasioned to each State or Colony by the deaths in the Great War. I obtained the basic information upon which these losses are assessed from two articles by Monsieur A. Barriol, the Belgian Actuary, entitled “*La Valeur Sociale d'un Individu*,” appearing in the issues of *Revue Économique Internationale* of December 1910 and May 1911. In the latter article, p. 357, he says, “*On peut classer les pays, dans l'ordre de valeur sociale moyenne que*

nous considerons comme représentative de leur développement économique :

1. Etats Unis . . . . .	(fcs.) 23,600 (£944)
2. Angleterre . . . . .	„ 20,700 (£828)
3. Empire Allemand . . . . .	„ 16,900 (£676)
4. Suisse . . . . .	„ 25,100 (£604)
5. France . . . . .	„ 14,500 (£580)
6. Suède et Norvège . . . . .	„ 14,000 (£560)
7. Autriche-Hongrie . . . . .	„ 13,600 (£544)
8. Belgique . . . . .	„ 12,800 (£512)
9. Italie . . . . .	„ 11,000 (£440)
10. Russie d'Europe . . . . .	„ 10,100 (£404)

There are a good many other "social valuations of the individual" published, but none of them are so complete or appear to me so correctly to appraise the material value to his country of an average worker as those of M. Barriol. The tables are, of course, pre-war, and may be considered of less value on that account, but I have used them expressed in £ sterling at par rate of exchange in arriving at the figures in the fourth column of the table on p. 58. M. Barriol gives a figure for England, but not for the British Colonies, and I have therefore increased his valuation of 20,700 fcs. (£828) by the additional proportion of full-scale pensionary allowance of each of the Colonies. This is the nearest approach which can be made to a standard of which each Colony would approve, based upon their own practical ideas of comparative value of a war-pensioned person.

One wonders how best to focus the reader's mind upon the grim story contained in, and lying behind, the preceding pages and the tables in this chapter. Perchance at this stage of the presentment of our problem, a simple concise summary of some of the chief items may serve to picture the effect of *using in one*

*modern war* the accumulated armaments of twenty-five years or so, and of employing Europe's modern chemical and mechanical potentialities for producing life-destroying material.

*Marine Losses, Naval and Mercantile.*—7255 ships of 17,816,411 tons sunk, with 7675 guns and torpedo tubes; costing originally about £585,794,360.

*Damages on Land.*—Houses, Factories, Public Buildings, Lands, Crops, Railways, Waterworks, etc., etc., valued at £6,000,000,000.

*Direct Money Cost to Belligerents.*—£35,448,000,000.

*Approximate Capitalised Value of War Pensions Liabilities.*—£11,500,000,000.

*Human Life.*—20,775,459 active men wounded. At least 8,646,024 killed.

*Loss of Human Capital or Social Value.*—Over £5,000,000,000.

And how much further have we advanced in the solution of the difficulties that brought about the Great War?

#### SECTION IV.—SPECIAL EFFORT DURING THE WAR OF 1914–1918

APART from the normal and continuous efforts which were made by the Governments of the belligerent Powers to meet the normal course of events up to August 1914 (shown by the military and naval expenditure given on pp. 31 to 39), an additional special effort, transcending that of all former periods of strain, had to be initiated immediately after the outbreak of war. As I have been unable, except in the case of

Great Britain, to obtain particulars of the quantities of materials prepared during the course of the War, the efforts of other countries must be pictured mainly as operations similar in character and intensity to those of the British Ministry of Munitions. Mere figures can convey but a faint idea of the feverish though ordered activities maintained by this emergency organisation, and it would need several volumes to bring before the reader's mind an accurate picture of the work involved in supplying our fighting needs.

For example, the total output of explosives from 1914 to 1918 amounted to 1,063,000 tons. This might not have been so difficult to attain had production been spread uniformly over the whole period; but we must note that the output rose from 46,100 tons in 1915 to 464,000 tons in 1917—more than ten times as much. These quantities apply to explosives and propellants. In addition large quantities of chemicals were produced for charging shells and grenades. In 1916 3000 tons were produced; in 1918 this had grown to 10,000 tons. These figures, of the (late) Ministry of Munitions concerning explosives, will be better understood in detail by a study of the "Hurter Memorial Lecture" delivered before the Society of Chemical Industry at Liverpool by Mr. William Macnab, C.B.E., F.I.C. who acted as Technical Advisor to the Department of Explosives Supply during the war period. This department concentrated upon the production of the explosives without which the armies of the Allies might have been vanquished through the enormous superiority possessed by Germany in the chemical industries at the outbreak of the War. Mr. Macnab modestly called his lecture "Some Achievements of Chemical Industry during the War in this Country

(Great Britain) and in France.”<sup>1</sup> Necessarily condensed, and naturally dealing with technical matters, it gives fascinating details of the stupendous efforts made to turn out explosives.\* One traces, for instance, the amounts of some chemicals produced during the War such as :

Ammonium Nitrate . . . .	378,000 tons.
T.N.T. . . . .	238,000 ”
Cordite . . . . .	139,000 ”
Picric Acid . . . . .	68,500 ”

Some idea of the enormous increase in production is gained by the fact that when the War began the total manufacturing output capacity, for example, of T.N.T. was only about *twenty tons per week!* To students of Armaments Mr. Macnab’s reprinted lecture will always be a valuable source of information.

Another remarkable instance of the activity of the late Ministry of Munitions was shown in artillery, the total number of guns produced under that organisation being 9000; here the difference was astonishing, the number being 360 in 1915, and 5000 in 1918. I have not been able to ascertain the number of artillery guns turned out in other departments.

Probably some of the most impressive figures relate to the output of shells. Labours almost superhuman must have been needed to produce from our raw material, with the facilities at our disposal, the tremendous increase. In 1914 the average *monthly* output of shells was 1995 tons; in 1915 it was 10,545 tons. Then came an immense augmentation, and in 1916 the average per month reached the amazing total of 85,329 tons. How it became possible to more than

<sup>1</sup> *Journal of the Society of Chemical Industry*, Dec. 15, 1922.

double this, and in 1917 to turn out the stupendous average weight of shells *each month* of 182,983 tons, can only be understood by those who thought and planned, strove and organised, in the face of almost incredible odds, achieving by dogged labour and sheer determination this enormous result. In 1918 the output was not very much lower, the total being 154,834 tons per month. It has been estimated by artillery officers and others intimately acquainted with the supplies of ammunition to the British fighting front and navy during the late war, that 184,240,000 shells were fired by their guns of one sort and another.

Measured in terms of hours of labour and material, the mind can hardly grasp the inner significance of these quantities. We may gain a little light on this aspect of the figures by remembering that the finished weight of a 6" shell when empty is about 85 lbs. and that the making of it calls for a total of twenty-six hours of all classes of labour. The total weight of steel devoted to production of shells from August 1914 to the end of 1918 was 5,375,000 tons. Taking a 6" shell as an average, for an illuminating calculation, it will be found that the regular labour of 16,000 people for about 100 years would be necessary to produce this huge quantity. Add to this the labour required to produce the material, and in finishing, filling, packing, transport, figures concerning all of which it is impossible to obtain, but which certainly double our estimate, and we arrive at the conclusion that the labour of 30,000 persons for over 100 years would be needed for the shells only, produced under the British Ministry of Munitions, and *projected through the air* upon the opposing forces.



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These figures apply only to the shell supply of Great Britain. What of the other countries concerned? How much did they produce and what number of hours or years of the time of their populations vanished in this work? To this no definite answer can be returned; but we can safely estimate the total as three or four times as large as that we have arrived at for Great Britain.

Guns, explosives, shells and their complex chemicals seem to take the first place in interest; but a hundred other forms of war activity were carried on by the Ministry of Munitions. Of these we can give only the barest outline, leaving the figures to carry their own impressive message—impressive enough without any attempt to translate them into terms of labour, tonnage or money. The numbers given apply, of course, to the period of the War:

Aeroplanes . . . . .	55,000
Rifles . . . . .	5,316,000
Tanks and Equipment . . . . .	3,000
Railway Track (1916-1918) . . . . .	7,000 miles
Railway Locomotives (1916-1918) . . . . .	2,000
Tractors and Wagons (1916-1918) . . . . .	80,000
Mechanical Transport Vehicles . . . . .	99,000
Small-arms Ammunition . . . . .	11,500,000,000 rounds
Seaplanes . . . . .	3,000
Machine guns . . . . .	240,000
Flying Boats . . . . .	800

When we attempt to review the labour question as it was influenced by this enhanced activity in unproductive work, we find it impossible to do more than generalise. Some idea, however, may be gained of the amount of labour actually absorbed under the direction of the Ministry of Munitions in the production of war materials by a glance at the table on next page,

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which shows the number of workpeople employed on Government work at various dates :

Industries.	July 1915.	July 1916.	July 1917.	July 1918.
Building . . . . .	141,000	207,000	219,000	216,000
Mines . . . . .	299,000	561,000	656,000	676,000
Metals . . . . .	1,297,000	1,694,000	1,996,000	2,220,000
Chemicals . . . . .	79,000	156,000	185,000	169,000
Textiles . . . . .	385,000	344,000	422,000	492,000
Clothing Trades . . .	206,000	143,000	148,000	194,000
Food, Drink, Tobacco	68,000	62,000	68,000	93,000
Paper Trades . . . .	35,000	44,000	64,000	76,000
Wood Trades . . . . .	92,000	92,000	116,000	138,000
Other Trades . . . . .	168,000	175,000	194,000	208,000
Government Establish- ment . . . . .	157,000	277,000	449,000	482,000
Total . . . . .	2,927,000	3,755,000	4,517,000	4,964,000
Percentage of total population employed	(37·3)	(46·8)	(55·3)	(61·5)

Obviously the financial department of the country had to find enormous sums of money to pay for the work of the Ministry of Munitions. It is not of much use to try to classify in detail the application of the various amounts so required and furnished, but we may give expenditure under certain leading heads up to the end of 1918 :

Ammunition . . . . .	£1,055,038,000
Guns, Small-arms and Machine guns . . . . .	135,378,000
Aeronautical Supplies . . . . .	194,765,000
Transport Vehicles . . . . .	91,920,000
Tanks . . . . .	25,615,000
Explosives and Propellants . . . . .	20,942,000
Trench Warfare Stores . . . . .	64,576,000
Railway Materials . . . . .	23,909,000
Total . . . . .	£1,612,143,000

Again, it must be clearly borne in mind that the expenditure just recorded is of Great Britain only. My endeavours to procure figures and information about other countries, comparable with those given for Great Britain, have not yet met with a sufficient degree of success to justify publication of tabulated details. They are too one-sided and partial, and there would at present be too great a percentage of "estimated" information. An odd fact here and there and some few striking figures were forthcoming, showing that *all* nations rose in a wonderful way to meet the urgent call for war material. The rate of production of iron ores and their transmutation into steel of all classes has certainly never before been approached in the world's history. No doubt sooner or later someone else will be able to state the figures relating to France, Germany, Japan, U.S.A., etc., but at this time I cannot carry these details further.

I must, however, refer to the effort made in the Chemical Industries of France, and again draw upon Mr. Macnab's "Hurter Lecture." In the early part of his remarks about France he recounts some of his experiences. He says, "We were justly proud of what we were accomplishing here (in Great Britain), but I always returned from France somewhat chastened and full of admiration and astonishment . . . they made magnificent efforts and achievements. . . . In 1914 I saw shells being filled with picric acid in a way that would have made our officials' hair stand on end! In a very extensive building there were erected a large number of glycerine baths in which cans of picric acid were stood until the acid was melted ready for pouring into the shells. The baths were heated by

open coke fires and the building was thronged with workmen. As the officer in charge truly said : " With the enemy on our doorstep and our soldiers crying out for ammunition, risks must be taken in factories which would not be thought of in peace time." It is satisfactory to be able to record that no disaster occurred in that particular department.

It is stated by Mr. Macnab that at the outbreak of war ten explosives works in France were employing about 6000 persons. Afterwards new factories were erected and the personnel increased to 120,000 in 1917. Apparently the actual capacity of the French explosives works on the outbreak of War was twenty-two tons a day of propellants, but the output of one explosive only (" Poudre B ") reached 370 tons a day, and the total production in France during the War was 306,700 tons, while 117,000 tons were imported into that country from America. The figures recorded of France by M. A. Hiller in an article " L'Industrie Chimique Française pendant la Guerre " demonstrate how their daily output of explosives rose during the War, in response to the almost superhuman efforts made. From page 324 of the *Bulletin de la Société d'Encouragement pour l'Industrie Nationale*, issued December 1920, I select the following extract :—

	Production par jour (en tonnes).	
	Avant 1914.	Au mois de Juillet 1917.
Poudre B. . . . .	15	370
Explosifs nitrés . . . . .	6	700
Explosifs Chloratés . . . . .	4	176

What a convincing measure of the effort put forth by France !

One more instance from the Continent of Europe. It has been ascertained that during the War Germany produced immense quantities of poison-gases, etc. The report of the British Mission appointed to visit Enemy Chemical Factories states *inter alia* that two factories (Oppau and Merseberg) having a daily output of ammonia of 25 tons a day in 1914 increased to 650 tons a day in 1918.

The output of nitric acid, sulphuric acid and chlorine probably rose in something approaching similar proportions. The remarkable speed with which dye factories were adapted for high explosives is illustrated by the works at Leverkusen, where a plant producing 259 tons of T.N.T. was put into operation in six weeks. The figures obtained about high explosives were those of the nine works in the occupied zone alone, forming only a part of the total German facilities, but in these nine factories the output of high explosives and intermediates reached 3229 metric tons per week, excluding propellant explosives.

But the most striking effort demonstrated in the same report is that of poison-gas production in Germany. In the factories in the occupied zone which were producing chlorine and phosgene before the War, over 78,000 metric tons were turned out during 1914-1918, and the other factories commencing manufacture after June 1915 supplied from 25,990 to 30,000 tons of other and more modern gases.

It is safe to say that in no known period of human history has such a gigantic response been made to a world-wide emergency demand, and that no business or avocation, no productive or manufacturing industry,

indeed no organisation for the direction of human effort was not laid in an over-riding manner under contribution.

What vast sums of money, what gigantic quantities of materials, were spent and prepared for this war by all the combatants and their suppliers !

In all countries no doubt great quantities of surplus war material had to be disposed of after the Armistice, and it would be interesting to know what the whole of it cost. But space and time forbid further explorations of such matters. To the British taxpayer it is of some interest that the Disposals and Liquidations Commission have paid some £650,000,000 into the Exchequer over a period of four years, being the proceeds of the sale of thousands of articles of "Surplus" of every conceivable description. The magazine published under this name monthly for several years is one of the most informing catalogues of "Armaments" possible to imagine. But what was the cost of the things which realised £650,000,000 in this huge surplus sale? Certainly three or four times the sale price, and in many known instances a great deal more. The *Daily Telegraph*, in an article which appeared in December 1922 entitled "Winding up the War," said :—"The time will come when, in the interest of historical accuracy, a full account of this great commercial transaction—the greatest in the annals of commerce—will be set forth for the enlightenment of later generations. For the facts deserve to be put on permanent record, so that those who come after may read and understand."

For the enlightenment of humanity in general one would like to see a full account published embracing all the war productions of all countries.

Is it any cause for wonder that the economics of all industries, and the balance of employment everywhere, were hoplessly disorganised by this unprecedented, tragic, abnormal effort?

With whom does it lie to say that the employment of metals and chemicals by human brains and hands for these purposes shall cease?

#### SECTION V.—CHEMICALS AND GAS WARFARE

THE chemical industry played a great part, described by some as the most important and vital, in the war of 1914–1918—the “chemists’ war,” as it has been called in many quarters.

Human beings have for centuries extracted from “Mother Earth” many different materials, powerful for good and evil; indeed the whole of the eighty odd elementary substances may be said to be derived therefrom if we include the enveloping atmosphere. Among them are the materials which form the basis of explosives, and the human brain and hand have learned to combine them to produce such finished materials of ever-increasing power.

For instance, we have unearthed coal, sulphur and nitre, which were not only the basis of the early gunpowders, but form the essential materials from which TNT, so largely employed in the Great War, is made.

But with the development of human skill we have learned how to manufacture from other constituents of the earth’s crust the poison gases possessing the terrifying and destructive powers witnessed in the recent fighting operations. And thus the chlorine,

bromine, iodine and arsenic derived from the salts found in the ground have been brought into combination with other products derived from the distillation of coal to yield the lethal substances employed in this new form of warfare.

The earth's natural elements have all been laid under contribution, and most of the persons engaged in such industries were during the war practically commandeered by our public departments for the production of the propellants and explosives required for the various missiles and the poisonous gases and chemicals used in land, air and sea fighting.

The brains and bodies of men trained in chemistry were jealously protected, and such men were only, in rare cases, *allowed* to expose themselves to the risks of the fighting line. To quote from the writings of an expert:<sup>1</sup> "It very soon became apparent after the outbreak of the war in 1914 that there was going to be a dearth of chemists to work the new factories, due to the patriotic way in which the greater number of chemists of suitable age had enlisted. Arrangements were made and a large number were recalled from the colours and sent to the explosives works." The pressing demand for chemicals caused unexampled conditions of strain and risk, rendering more noteworthy the skill and real heroism of those who were engaged in devising and working the processes for making poison gases. "Some were killed, some permanently injured and nearly all suffered abominably, yet they carried on in the most self-sacrificing manner. Truly the chemists did not fail the nation in its time of need."

<sup>1</sup> William Macnab's "Hurter" Lecture at Liverpool, 1922, referred to previously.



If the energetic competition in killing appliances continues, we may yet witness the commandeering of all such brains in all countries for their *several protection*, for it is considered that chemical science stands merely on the threshold of its possible applications to explosives, flame jets and poisons.

Whether poisons are liquid, gaseous or powdered, one may remark that their ultimate potentialities have been little explored as yet. There is at present a line drawn between the poisoning of air, food and water, and the production of poisoned wounds resulting from explosives, shells and bullets. Also the introduction of poisons into foods destined for enemy forces is up to the present not considered to be included in the regularised methods of "civilised" warfare.

The poisoning of the atmosphere by gas and powdered substances was officially employed, however, to a very wide extent, and great volumes of mustard gas, tear gas and other poisonous and irritating clouds were liberated, causing immense loss to one side or another, and the painful death or permanent maiming of numbers of fighting men. It has been rendered so evident that poisoned gas is an invaluable weapon, that the British Government have appointed a Chemical Warfare Research Committee to study the development of this class of warfare, and several other Governments have taken similar action.

In view of the decision reached at Washington that this type of warfare should be barred by international agreements, some readers may query whether it is legitimate to bring this subject under review in considering the problem of armaments, but it must be admitted that there seems every probability in spite

of this decision that it will loom very largely in the preparation for future war, whether defensive or offensive. It is generally conceded that men may be put out of action more easily and at less expense by poison gas than in any other way; consequently, it seems only too likely that all nations will call upon their chemists and engineers to develop this mode of warfare to the best of their ability.

One's natural reply to this query in reviewing the extent to which chemicals, other than explosives or propellants, form part of the problem of *armaments*, is that the proportion of chemical enterprise, though comparatively small in past wars, became great in the recent war, and will become enormous and dominant in the future if the practice of producing means of menacing our enemies, or of countering their menaces, is to be continued.

The future is undoubtedly the preoccupation of those whose business it is to attack and defend. Chemical warfare research organisations are doubtless very active, and in many countries in recent years have absorbed the initiative, intellect and energy of many of the leading men in the field of organic chemistry. These men confidently express their belief in the certainty of discovering substances of vastly greater destructive power than any yet evolved. Scientific effort has been hitherto but little directed to the search for lethal substances, but what is being and will be achieved in this direction means terrible destruction in future struggles.

Penetrating even slightly beneath the surface of this question, one realises that there is a vast difference between experiment on and development of long-range guns, on the one hand, and of applied chemical warfare

on the other. It is obvious that in manufacturing long-range weapons which might project a shell with accuracy for anything up to one hundred miles, the very preparation of the steel for the gun-barrel would reveal the intention of its designers. It would be impossible to carry through the preparation of material, machining up, erection and testing of such a gun in perfect secrecy. On the other hand, the development of chemical warfare, either in its protective or offensive aspect, could easily be carried on without attracting any public attention. One may go further and say that most if not all of the poisonous gases used in the Great War are prepared from the same fundamental compounds that are employed commercially in the great chemical industries concerned in the manufacture of dyes, drugs and fine chemicals, and could be accumulated in large quantities for war purposes without exciting any notice. The extent to which this is true is shown by an interesting table on pp. 8 and 9 of the report mentioned on p. 69, indicating how the production of war chemicals in industrial works involves simply a number of stages, some of which in the German chemical warfare organisation occurred separately in different factories. Thus, during, say, three stages taking place at different works, there may be no outward indication that war chemicals are the objective, and at any one stage the product might be quite rightly used up for industrial or medical purposes; but at the fourth stage, virulent gases are completed which might enable the country possessing these facilities to "out-poison" any of its neighbours at comparatively short notice. This fact has hitherto dwelt in relative obscurity, but it must be taken into account in any plan for reduction of armaments, or it may become the

most potent factor in causing certain countries to *increase* their fighting capacities. To those people possessing such facilities for producing war chemicals it should become obvious that it is for them to practise realities, not to indulge in evasions.

The technical terms in Chemical Tables do not convey much, as a rule, except to those conversant with organic chemistry and its phraseology. I have therefore prepared some tables in which are introduced terms more easily comprehended, which will show to the non-technical reader the intimate relation between war chemicals and the dyeing and other chemical industries. Against the initial German gas attacks, Great Britain, France and others produced, under many difficulties, very effective protective measures, some of which are briefly described in p. 72, and, later, they themselves resorted to the use of poison gas as the only possible response, and thus were led into the carrying on of chemical warfare from the point at which it was introduced by Germany. Afterwards, chemical offensives were accepted and employed vigorously by all parties and came to be regarded as a vital necessity in the prosecution of the war.

It is impracticable to attempt to review all the operations of Chemical Warfare, but in order to convey some idea of the many kinds of substances and the numerous industries thus deprived of material, I have given the names and constituents of some of the leading gases, etc. in the following tables. I have had the benefit in the preparation of these tables of the advice and assistance of Mr. Francis H. Carr, C.B.E., F.I.C., also of the help of Major Victor Lefebure, to whose book, *The Riddle of the Rhine*, I make reference later on.

# THE EXTENT OF THE PROBLEM 77

TABLE OF MATERIALS EMPLOYED COMMERCIALY IN THE DYE-STUFFS AND ORGANIC CHEMICALS TRADES, AND IN THE PRODUCTION OF FINE CHEMICALS, DRUGS, ETC. THESE MATERIALS MAY BE RAPIDLY TRANSFORMED BY EASY PROCESSES INTO WAR CHEMICALS, POISON GASES AND LIQUIDS, SMOKE AND CAMOUFLAGE SCREENS, ETC.

Materials employed.	Ordinary Uses in Commerce and Science.	Poison Gases, Powders, Liquids, etc., produced.		
		Popular Names.	Note below.	Technical Names.
Bromine and Methyl-ethyl-ketone.	Drugs, mineral separation. Perfumery solvent.	Tear gas, or crying mixture.	(1)	Bromo-methyl-ethyl-ketone.
Chlorine, sodium sulphide, Hydrochloric acid, Ethylene alcohol.	Dye-stuffs, drugs, (Novocain) and many other industries.	Mustard gas.	(2)	Dichlor-diethyl-sulphide.
Aniline, Arsenic oxide, Potassium cyanide.	Dye-stuffs, drugs, insecticide, Gold-mining and other industries.	Sneezing gas.	(3)	Diphenyl-cyano-arsine.
Carbon dioxide, Charcoal, Chlorine.	Brilliant scarlet dyes. Oxalic and formic acids. Refrigerating machinery.	Phosgene.	(4)	Phosgene.
Bromine, Acetone.	Drugs and mineral separation. Very important solvent for many manufactures.	Tear gas.	(1) and (4)	Bromo-acetone.
Chlorine.	Important material in production of indigo and sulphur black and in bleaching.	Burning cloud gas.	(4)	Chlorine.
Bleaching Powder, Picric acid, Chlorine, Lime.	Bleaching, explosives and yellow dyes. Textile cement and many industries.	No popular name.	(4)	Chlor-picrin.
Chlorine, Methyl-formate, Methyl-alcohol.	Chemical, dyeing and many industries. Solvent perfume base.	Diphosgene.	(4)	Trichlor-methyl-chloro-formate.
Aniline, Arsenic oxide, Alkali, Chlorine.	Dye-stuffs, drugs, etc. Insecticides, medicines.	Sneezing gas.	(3)	Diphenyl-chlor-arsine.
Formaldehyde, Hydrochloric acid.	Disinfectant. Preservative and all industries.	No popular name.	(1) and (5)	Dichlor-methyl-ether.
Xylene, Bromine.	Solvent. One of commonest drugs.	Tear gas.	(1)	Xylol-bromide.
Phosphorus.	Matches and hypophosphites.	Smoke screens.		Phosphorus.

In addition to the above, Phenylcarbylaminechloride, Methylsulphate, Sulphur-trioxide, Chlorsulphonic acid, Methylchlorsulphonate, Allyisothiocyanate and Prussic Acid were used in the war of 1914-1918. Many other substances in liquid, gaseous or powdered form have also been employed, and all industries use them practically in one way or another.

Most war chemicals and poisons may be approximately classified as follows :—

1. Lachrymators or compounds affecting the eyes, producing copious weeping and temporary blindness. The military value of these compounds was referred to in lectures in Munich even as far back as 1887.

2. Vesicant or blistering compounds, causing skin burns which may require up to six months to heal.

3. Sternutatory or sneezing mixtures, causing violent irritation of nose and throat, nausea and intense pain.

4. Asphyxiating gases causing suffocation and death as a result of lesions in the pulmonary system and respiratory organs.

5. Toxic or "poisonous" materials, specially affecting the heart's action or the nervous system, and resulting, when the poison is sufficiently concentrated, in rapid death.

Some of the war chemicals given in the table possess more than one of these characteristics.

The methods of employment of these chemicals in warfare and their manner of action and effect upon human beings are very varied. The first "tear gas" mentioned appears to have been used as a liquid in German shells in 1915, and the second gas (bromoacetone) of the same class, which is both a tear gas and a "suffocator," was introduced through howitzer shells in the same year. Chlorine was used in quantities

in 1915, as described in General French's report, an extract from which appears later, and was released from steel cylinders, wherein it was brought to the German front in a liquid form, expanding into a dense cloud of poisonous fumes as it escaped from the opened valves.

In the summer of 1916 "diphosgene" came over to the British and French lines in the German Green Cross shells and trench mortar bombs, and I am informed that upwards of 100,000 such shells were fired into the Allies' lines during the action before Verdun. This gas has a strongly toxic effect, specially affecting the heart's action and speedily becoming fatal. Sometimes, mixed with it in the Green Cross shells was "chlorpicrin," an asphyxiating substance causing death by suffocation.

The tactical uses of these compounds were ingeniously carried on and developed. For example, in some of the shells known as Blue Cross, sneezing gases, containing arsenic, cyanide of potassium, chlorine and aniline were fired among troops wearing gas masks, and the violent irritation, sickness and intense pain led the men to remove their masks and thus leave themselves defenceless against the poisonous, burning or asphyxiating substances.

Many of the latter were described in military terms as very "persistent"—that is, they hung about for a long time after being released from the exploding shells. Further, the effect of such gases as phosgene was not very apparent at first, but it is exceedingly poisonous and becomes deadly to the respiratory system twenty-four hours after breathing. It was one of the most effective of the substances used during the late war.

One might continue to describe these things and their uses and effects through several volumes, but enough has been said to substantiate the claim that "Chemicals" are "Armaments," and that in time to come, unless the human race determines otherwise, they will take a place far in advance, from the point of view of military value, of that occupied by heavy fighting apparatus.

To reduce this particular risk by a measure of "disarmament" is a proposition which bristles with difficulties of a type quite different from the reduction of fleets, guns, tanks and fighting planes.

The chemical resources of any great country are the *life-blood of some of its greatest industries*, and to deprive them of that life-blood is something which no disarmament scheme would dare to tackle with any hope of success. Is it not a matter for action by the great chemical trades, and would it not pay us all to establish some kind of balance between the organic chemical producing facilities of the chief countries concerned?

Any plan of disarmament which omits to deal with this point will be leaving untouched the chief fighting materials, in preparation whether intentionally or otherwise, for another great international struggle.

This is vital and essential if secured progress is really to be obtained.

It may be safely assumed that all the countries engaged in producing war chemicals during the period of the war will increase their facilities for manufacturing the already standardised war poisons and gases, and, what is not only likely, but certain, for preparing some dreadfully effective and deadly surprises for the other side. Let it not be forgotten, therefore, that past or future war chemicals merely involve actual commercial



processes for some stage in the production of commercial organic chemicals such as dyes or the numerous articles required in pharmacy. A little reflection enables one to see that the head of a chemical laboratory, while employing his assistants in quite ordinary experimental research, could pave the way for the production of some deadly war chemical without even his own staff necessarily becoming aware of the fact.

The problem of armaments, therefore, embraces the whole of the chemical industries of all countries. This startling fact again emphasises the vital consideration that the temper and attitude of the various families of the human race toward one another is a chief factor in its solution. Having said this, however, do not let us omit all the precautions,—international legislation, internationally agreed control, and the exchange between nations of technical knowledge as it develops. At this point one can imagine a commercial argument: the question, "Why should one individual, or any collection of individuals, or corporation, or company, develop its research for the benefit of others and without obtaining its due reward?" This reward, obviously, is likely to be very much larger in time of war or threatened war than it would be in times of peace, when the demand for such articles is less and the price to be paid for them is smaller. In commercial society, as constituted to-day, such an argument cannot be ignored. It is not, however, within the scope of this book to meet it; but we may express the conviction that the commercial argument is not sufficiently strong for a nation to allow it to influence questions of peace or war. Our suggestion of interchange of knowledge again holds good. If the chemical fraternities of each nation were immediately made acquainted, through

some international body, with discoveries of other nations in their particular sphere, the risk of surprise would be very much less. Such an idea will be promptly scouted; but I submit that this is work for an honourable international chemical association to undertake, both from the point of view of world development and in the interests of the cause we have at heart.

One hopes that the example set by the Germans on April 22, 1915 in their first gas attack at Ypres may never be repeated. While not wishing to harp upon this class of horror, I reproduce a quotation from the statement made by Field-Marshal Sir J. P. D. French concerning this attack.

"Following a heavy bombardment, the enemy attacked the French division at about 5 p.m., using asphyxiating gases for the first time. Aircraft reported that about 5 p.m. thick yellow smoke had been seen issuing from the German trenches between Langemarek and Bixschoote. What follows almost defies description. The effect of these poisonous gases was so virulent as to render the whole of the line held by the French Division practically incapable of any action at all. It was at first impossible for anyone to realise what had actually happened. The smoke and fumes hid everything from sight; hundreds of men were thrown into a comatose or dying condition, and within an hour the whole position had to be abandoned. . . ."

The head of the Chemical Warfare Department of the United States, General Fries, has recently given an up-to-date pronouncement, the views he expresses constituting both a warning and a recommendation—a warning of the terrors of chemical warfare, and a recommendation to his own compatriots to be ready to counter the menace of the Chemical Warfare

Services of other countries. "Chemical warfare," he says, "is a complete science in itself."

"No other intention since that of gunpowder has made so profound a change in warfare as gas is making, or will make in the future. . . . The gases, smoke and incendiary materials are used to a greater or less extent by other arms, but wherever gas is used it compels precautionary measures that are found in no other branch of the Services. Considering its power, it has no equal. Physical vigour is one of the greatest assets in any army, but gas used properly and in quantities that will be easily obtainable in future wars will make the wearing of the mask a continuous affair for all troops within from two to five miles of the front line. . . . If it never killed a man, the reduction in physical vigour and efficiency of an army would be equivalent to disabling a quarter of a million men out of an army of a million. . . . One great reason why chemical warfare will continue, is that it fills a long-felt want on the part of the soldier—that of shooting successfully round a stump or rock. . . . Gas is inescapable. No trench is too deep for it, no dug-out, unless hermetically sealed, is safe from it. It is the only weapon that is as effective in a fog or in the inky blackness of a moonless night as it is in the most brilliant sunshine."

General Fries goes on to detail the wide range of application of chemicals generally. Among other facts, he arrives at the startling conclusion that although the Germans used gas in a comparatively limited and feeble manner, 75,000 casualties out of 275,000 (American) resulted from it. Much more matter bearing on the subject might be extracted from the remarkable

speech of this highly intelligent General, whose knowledge of gas warfare and its potentialities is unequalled.

And what is the warning given by him? He says:

“The universal adoption\* of gas warfare on sea and land and in the air, combined with its persistent quality, will make that nation able to produce and use gas in the largest quantity, superior in war to any other nation on the globe. The U.S.A. can reach that position and maintain it, and I believe that we are going to get such encouragement from our War Department that we shall do it. . . . So long as there is any danger of *other* nations” (the italics are mine) “continuing these methods of warfare, research and experiment in chemical warfare must be pursued. Research must not only be directed towards the gases and apparatus likely to be employed in the future, but also towards protection against all possible gases. . . . We must continue our studies of what is known as chemical warfare. No nation has renounced the use of poison gases as the result of the Peace Conference, and there are nations whose word we could not respect if they did renounce it.” (This was written before the Washington Conference.)

It will be noticed that General Fries endorses what has been said in this book with regard to fear and distrust between nations. Is it not clear that one of the greatest needs is for each citizen, in every nation, to see that he on his own part and his Government on his behalf shall not indulge such policies, or take any action calculated to cause distrust or fear in the minds of citizens of other nations?

General Debeney, of the French College of Warfare, says that the defence against gas seems to be more difficult than that against aeroplanes. He thinks that

although anti-aircraft artillery may make rapid progress, the best defence would be by poison shells, which could create an effective poison zone round the attacking aircraft; this would take the place of direct attempts to hit the small mark by bursting shells.

The creation of fear in other nations has reached, of late, a stage when it becomes almost an art. In every morning and evening paper, examples of the process may be found. Under the heading "New Torpedo 'Plane,'" for instance, we find quite recently the following news item :

"After many experiments, a seaplane has been designed, capable of carrying and discharging with accurate aim a torpedo weighing more than 2,000 lbs. The design has been submitted to the Air Ministry. Flying at high speed, this 'torpedo 'plane' will be able to dive to within 300 or 400 yards of a battleship and destroy it with one blow on a vital spot.

"There is no ship afloat that could stand up against such a terror of the air,' an expert of a firm of builders of battle 'planes told a *Daily Mail* reporter on Saturday. 'In any future war a fleet of such torpedo 'planes could rule the seas, sweeping them clear of enemy ships,' he added.

"The United States Government is spending a great deal of money in perfecting torpedo 'planes and has many in commission. Japan, too, is showing keen interest in them and is experimenting with various types."

Again, the Press has been full of disheartening prophecies of late, concerning the terrors to be released during the next war. It is strange and inexplicable that the thoughts of mankind, even after the experiences of recent war years, so persistently turn towards

further conflict, instead of becoming fixed on preserving peace. In an interview widely published, Mr. T. A. Edison expresses his opinion thus :

“ Neither I nor anybody of my acquaintance has discovered any protection against the aeroplane even in its present state of development. There is in existence no means of preventing an aeroplane flotilla flying over London to-morrow and spreading over the millions of Londoners a gas which would asphyxiate those millions in a relatively short time. From twenty to fifty aeroplanes would be amply sufficient for this purpose.”

He observed (with a smile, according to the interviewer) that with the aid of “ Lewisite,” the most deadly poison gas yet produced, London’s population could be choked to death in three hours. War, he thinks, “ will be ultimately suppressed by the invention of some machine so terrible and so absolutely terrifying in its possibilities, that mankind would renounce warfare for ever.” But is not this, colloquially speaking, putting the cart before the horse? Is there any guarantee that the nation which chanced upon this hypothetical, but possible terror, would have no rival in inventive genius keen to try its power?

The same idea, in more measured language, is expressed by Major C. C. Turner in the *Nineteenth Century* for August last. Discussing the scope of air offensives, he writes :

“ Rapidity of action is the outstanding quality of aircraft. At the outbreak of war aircraft will be capable of delivering attacks more or less paralysing, without reference to land or sea frontiers. The main problem relates to the force

and effects of such attacks. Marshal Foch, defining the reasons for the French aerial programme early this year, said :

“The military mind imagines that the next war will resemble the preceding. That has never been the case, and never will be. One of the greatest factors in the next war will be aircraft. The possibilities of aerial attack are almost incalculable; but it is clear that such attack, owing to its moral effect, may impress public opinion to the point of disarming the Government.”

“This is absolutely true, and remains in essence true, no matter how we may speculate on the *moral* of European nations. Such small raids as Britain endured in the late war really acted as stiffeners, strengthening national resolve. For military reasons the results were greatly exaggerated for public consumption in Germany, so that when it became our turn to raid the enemy he would have a wholesome dread of the consequences. But we must not measure the air raids that will be made in the first week of the next great war with the best that was possible in 1918.”

In his book, *The Riddle of the Rhine*, Major Victor Lefebure gives in great detail an immense amount of information about the preparation and use of war chemicals generally, and those interested in the closer details of this aspect of the problem of armaments should read the book and keep it on their shelves as a work of reference.

A feature of this side of the subject is that although one can approximately estimate the problem in terms of warships, tonnage, horse-power, guns, ammunition and finance, there does not appear to be any kind of measure available in estimating its extent where it is related to organic chemistry and chemical warfare.

Is it too much to hope that every chemist, of whatever nationality, may one day find himself possessed, with the ideal that service to the human community, of which he is a unit, is a far better and higher thing than the secret development of chemicals which in the hands of his own compatriots would enable his nation to surprise and defeat another nation with a deadly invention that blasts, burns, poisons or destroys?

There are many such men now giving their whole life and energy to beneficent research work, but who, alas! may find their vocation turned suddenly to the work of destruction by agencies and powers outside their personal control or influence.

One might pause here for a moment to reflect that all such knowledge, however abstruse, is clear and plain to the mind of the Master of the Universe, and that to that Mind the potentialities of all the elementary materials contained in this earth have never been secrets. To that Mind the possible combination of chemicals, their explosive or poisonous capacities, the metamorphosis of crude iron into edged weapons and steel structures, the hundreds, the thousands of bacterial developments for good or harm to the human creature, are simple and free from all mystery. Were these things intended, when discovered by these human creatures, for general aid and use, or for mutual destruction?

So far little or nothing has been said of the production of fine chemicals which in war-time are needed in great variety and quantity for the purposes of healing wounds, curing illness and checking the ravages of disease. During the last war, added to these requirements, was the need of materials by which to counter the attacks of poison gas, this chemical material



taking the form of absorbents placed in the respirators worn by the men in action. My friend F. H. Carr tells me that there is a close connection between the manufacture of these finished substances and poison gases, many of them being built up from the same elementary substances and intermediate products. He further says that fine chemical manufactures call for the exercise of the very greatest skill and experience on the part of the workers, as well as of exact scientific control, and he emphasises the fact that a fine chemical industry is just as necessary for defence as it is for attack.

Incidentally, Carr himself played a leading part during the war in manufacturing such chemicals, particularly in the production of some seven million box respirators which proved the salvation of hundreds and thousands of officers and men. To him I am indebted for much help in reading and correcting the pages of this chapter. In October 1922 in one of his letters I find he said: "I have suffered great anxiety during these weeks because of the international situation. If only the mass of human creatures could give effective expression to what is really implied by the religious spark which all possess, the League of Nations, the Christian Churches and the Mohammedan and Buddhist ones too would make war impossible. Why this awful failure in the shadow of material prosperity and scientific achievement?"

I cannot close this chapter without a quotation from the words of another chemist. My friend William Macnab, to whose "Hurter" Lecture reference has been made, and who has given valuable help in several ways with this book, kindly permits me to quote from the latter part of the lecture. Having described

the efforts made to meet the demand for explosives and chemicals in 1914-1918, he said :

" In this sketch I have endeavoured to indicate the really magnificent efforts that were made in this country and in France in chemical industry during the war, and the enormous outputs of many and varied chemical products. As achievements of chemical industry, all concerned may regard them with pride.

" And yet it is a bitter thought that all this intensive effort and expenditure of brains and intelligence resulted literally in smoke and destruction of life and property that is truly appalling. As chemists, we know better than most people the awful possibilities of suffering and destruction another great war would entail, unrestricted as it would seem to be in every sense.

" It seems to me that it is especially laid on us to bear this in mind and combat every tendency which might lead to war, and endeavour to prevent mankind from entering on such a suicidal course."

#### SECTION VI.—THE NATIONALIST POINT OF VIEW AND THE HALF-DEVELOPED PEOPLES

Loss of prestige, either actual or threatened, may be regarded as one of the most powerful reasons for the maintenance of armed forces on the fringes of civilisation in districts where the white races continually push on into territories occupied by the darker races of Africa and Asia. Many of the " collisions " and " incidents " on the borders of India, in Egypt, in South, East and West Africa, might, no doubt, have been avoided if white men—and women—had never gone there; but it seems that it is the ineradicable nature of the white man to penetrate, to expand, to

trade, to explore unknown ground. The origins of such affairs, however, do not come within the scope of this essay, and no opinion is passed upon them, whether they result from attitudes which might be sketched by the imperatives—"Make room—here is a white man!" or "I am going to trade in your country—be traded with, and, if need be, oppressed;" or by the milder phrases—"My justice and protection are necessary here to hold the scales true and to give a moral lead where black oppresses weaker black and moral progress is unknown," or "If we do not come, possibly a less just and less moral power from Europe will do so;" or by any of the other reasons, not very dissimilar in type, given by the people of higher development as they enter the territories of the less developed and press the inhabitants farther back.

With this advance of civilisation go almost invariably two things—liquor and weapons. The effect of the first and of its attendant evils upon the lower animal nature of the black tribes often brings cause for the employment of the second; and this, in turn, inspires the revenge, personal or corporate, which has so frequently been taken by the dark race against the lives, the property, and sometimes the women of the new-comers. Punitive expeditions, "military missions," and protective measures are demanded; the tomtom of the savage finds its echo in the war-drum so energetically beaten by certain sections of the Press at home; and, once again, the solution of these difficulties is sought by the one road which is bound to fail—the road of armaments. It would, of course, have been better if the causes of these disputes had never arisen; but they have arisen, and we cannot set back the hands of Time's clock. We must be wise

now, and in the light of our new knowledge avoid arousing the need for such revenges, such shedding of blood, in the future, and see that the least possible quantity of armaments is provided at such points of contact with peoples of strong sense of nationality and the less-developed races.

The nations which have developed fighting appliances to a high degree of perfection, however, provide but a small amount of money and material for causes such as these; their whole contribution is a mere bagatelle compared with that used and applied between themselves in their own differences and disputes. The frontiers of the European States are the real springing-points of the armaments, war programmes, and war expenditure which are dragging the civilised world of to-day within reach of destruction. Noting this, uneasy thoughts and visions of the future are aroused. May not the day come when the present less-tutored races of Asia and Africa will descend upon our Western world, upon white Africa, Australia, and similar dominions, and find us and them so exhausted by wars, so shorn of the ideals and practice of humanitarian progress, that we of the civilised world fall an easy prey?

Let us not deceive ourselves, therefore, into the belief that our armaments programmes are the necessary outcome of defending the frontier fringes of what we term our civilisation. They are intended, in Europe, for use between France, Germany, Italy, Belgium, Britain, Russia, Greece, Turkey, Bulgaria, Poland, Roumania, and all the pieces of territory, large or small, where European civilisation has delimited frontiers—and armed them. The prime error in this is that all these countries proceed positively on the idea that safety depends upon the comparative help-

lessness of their neighbour, instead of upon their kindness; upon their own strength, instead of their 'neighbours' goodwill; and little or no effort is made to find an objective, a *via media* in emergencies, which will give progress, help and satisfaction to their weaker neighbours as well as to themselves. Even a short era of enlightened self-interest would see Europe on the way to become a fruitful, prosperous and happy continent suitable for its intellectual and industrial majorities, instead of being, as it is at present, a series of armed camps, bristling with bayonets and guns, with industries chained down or hampered by the ceaseless production of armaments, of death-dealing poisons, of air fleets even more competent for wholesale destruction.

Is it beyond our capacities to find some common objective whereby this waste can be stopped? Must it be really, honestly confessed that in spite of all our own triumphs of intellect it is impossible for Germans and Frenchmen, and other nations which have shared in or added to these triumphs, to "dwell together in amity"—in other words, to live together in Europe as human beings should live? Or must we admit failure and despair, condemn them one and all to regard their span of life as filled by the repeated processes of self-exhaustion, the interminable processes of frontier-defending?

Very real difficulties are met with when we extend the boundaries of this problem and consider the relations of European States with the peoples of the near and far East—more real, in some respects, than the difficulties confronting us when discussing the European States alone. The race problem and the colour-line become very grave factors when a World League of

Peoples is propounded. Eastern countries are developing rapidly—Japan may be especially instanced—and, yet, when the first draft Covenant which eventually became the famous Covenant of the League of Nations was adopted by the Peace Congress at Versailles, in February 1919, the Conference had rejected, almost without hearing, the proposal of the Japanese envoys that the said Covenant should include an article abolishing racial discriminations in future international dealings. Two days later Baron Makino, on the adoption of the clauses forming the Covenant, said :—

“I beg to add another voice to echo the congratulatory speeches that have been made on the presentation of a document which is, perhaps, the most important document that has been compiled by man. The great leaders, with staunch purposes, have personified this great movement, a movement involving intricate problems of divers nations, and they deserve the gratitude of their fellow-men for successfully piloting to this advanced stage a most effective instrument for the maintenance of the peace of the world. Their names will be written indelibly on the pages of history, and that will be the grateful acknowledgment of humanity for their labour.”

The nations claiming greater advancement than Japan (as Japan claims to be in advance of China, China of India, and so on) must closely regard this question, which will become more and more insistent as efforts are made to organise the principal nations on a League basis. The position of the less-developed peoples is very pithily put by K. K. Kawakami in his book *Japan and World Peace*, and I quote from pp. 56 and 57 his own words :—

"I feel justified in saying that, even if the proposal for the abolition of racial discrimination were adopted, Japan would not insist upon the complete and immediate removal of the barriers which have been erected against Japanese immigration in various Western countries. What Japan will insist on is nothing more than a fair and just treatment for the Japanese who are entitled to travel or reside in those countries. Nor does she urge that all Asiatic peoples be put upon an equal footing, if the Western Governments find it more practicable to deal with the Japanese independently to the other Asiatic races. For Japan certainly has no ambition to be the champion and mouthpiece for her numerous and ponderous neighbours on the continent. At the same time Japan feels that no nation should be made an object of discrimination at the hand of any Power with which it is on a plane of equality. This is an international usage, unwritten but nevertheless in force. A nation, admitted by universal consent into the comity of the world's foremost Powers, must be accorded the respect and consideration due such a Power. Fortunately or unfortunately, Japan is the only nation in the Orient which has attained such a position. She would fain leave it for the Western statesmen to decide whether she should be put in a class separate from other Asiatic peoples."

This is a valuable contribution to current thought on international progress, and cannot be ignored in any consideration of the "Problem of Armaments" as affected by the nationalistic views of Oriental races. Mr. Kawakami goes on to say :—

✓ "When Socialists in America and Europe pledge themselves to internationalism they are thinking only of Europe and America, forgetting

that across the oceans teeming millions are crying for larger fields of activity. When the trade unionists of Europe and America speak of the brotherhood of workers, they are only thinking of their own race. They complain that Japanese working men work for low wages, ignoring that, if the teeming masses of England or America were bottled up in a small archipelago as are the Japanese, their wage scale would not have risen so rapidly as it has. When the pacifists of Europe and America advocate world peace, they seem to mean maintenance of peace by sustaining the *status quo* of the relations of the East and West—by permitting the West not only to continue its occupation, in all parts of the world, of more territory than it is justly entitled to possess, but also to exclude from such territories all dark-skinned races, whose overcrowded homelands afford not only scant opportunity to their natives, but are themselves often subject to ruthless exploitation at the hands of the West. A Western nation may declare a Monroe Doctrine, but it is reluctant to accord an Asiatic nation a similar privilege. The West expects the East to open its doors to the enterprise and even exploitation of the white race, but reserves the right to slam its own doors in the face of the East."

Perhaps we can trace here, without undue wonder, a certain tone of bitterness. We should be unwise not to mark it. The whole of this part of the Japanese argument seems to culminate in a justification of Japan's reasonable ambitions for possession of the Marshall and Caroline Islands.

We must leave Japan at this point, intensely interesting and enlightening as Kawakami's book is, considered as a clear presentation of the Japanese view, and turn again to the State Nationalism of Europe.

In this examination of the problem I desire to avoid



any *ex parte* impulses, and to omit entirely all prejudiced statements of opinion as to the relative merits or responsibilities of any particular nation concerned in the Great War. It cannot be possible for anyone such as myself with a limited and hearsay knowledge of the facts, correctly to apportion the responsibility for the military growth of the last half-century in Europe, and particularly during the period following 1900. The great American Ambassador, Mr. Walter Page, I believe attributed the "grand smash," as he called the outbreak of 1914, mainly to this military growth in Central Europe. He clearly saw that the greatest factor making for the political disruption of Europe was lack of vision. Had Mr. Page lived longer, the world might have heard a vital pronouncement of opinion on that period of history, and seen an illuminating beam of light thrown along the rough road which points the way out of this tangle. Rough and dark though it may be, that road lies somewhere, and it is for those succeeding this great American to discover where it is.

But how can one leave unsaid anything about the Nationalist point of view? Indeed, is not the whole problem of armaments the result of the clash not of ideals of nations, but of the points of view expressed by the political programmes of the states and kingdoms into which the material affairs of those nations have been organised? The Nationalist point of view is, maybe, the collective expression of a majority, but it reflects seldom, if ever, the ideals held in common by individuals, where they have crystallised in the form of a nation and endorse its political programme.

In Europe it is not the differences in moral outlook, or in education, or in ideals of progress that divide

France and Germany, or constitute the other chief points of danger; nor is it now the fact that France's fears arise from her ancient terror of Kaiserdom. Kaiserdom is dead; but is the spirit of millions of people in Europe which made it possible in 1914 inoperative to-day? The position of these two nations standing opposed results from the fact that they have *no common aim directed to secure the benefit of both nations*. Instead, their national programmes clash constantly, and will continue so to do until the personnel of these two great nations can combine in a common pursuit of peace in industrial and personal security.

Though one may wish to say little in the way of criticism, it is impossible to forget that history is now demonstrating that the cruel and material ideas which have dominated the thought of *Central Europe* for a century and more are still the most potent factors in national outlook over the *whole* of that great Continent.

The war, particularly in its opening chapters, taught some very striking lessons in national outlook. It was commonly thought, and said, by Central Europeans that Great Britain would not dare to risk coming into the war. It was believed that from Ireland and India rebellion and attempted separation would become dominant factors in the British Empire, and its military and naval potentialities. The idea that Canada, Australia, New Zealand, Africa and India would make common cause with the Mother Country was derided, and in Germany a person hazarding an opinion as to the United States, with its millions of German origin, entering the conflict on the side of the Allies, was generally regarded as a lunatic or a traitor, fit only for execution or incarceration. Obviously, strict logic is

unreliable in national calculations; there are other factors, of sentiment or attachment, which, as in individual relationships, have tremendous influence in turning the scale.

There are also, as we have seen, the questions of India, Japan and other partly developed nations, with their several difficulties due to reception being recognised or not on an equal basis with other white nations.

Another aspect not to be neglected is the matter of concerted international action by members of a League. We realise that nations are constituted and governed in many different ways: some by a liberal franchise; some by partly exercised choice; some by purely outward circumstances; others are controlled by more developed states, but still claim to be separate nations. It may be conceded that the highest form of government exists where the governing body is most truly representative of the views of the people, expressed through their franchise. A representative government of the most democratic kind surely is the *Ultima Thule* of modern statecraft, and should be the mouth-piece of the nation's will in all questions of peace, war, taxation and expenditure on armaments. If it were feasible, what more could one ask of this generation than an international government, or something approaching it, expressing the will of grouped—preferably of all—nations? Such unity, however, is probably too ambitious an ideal for our present stage of development. Harmony might be maintained in all matters of scientific, economic and even of organised social progress; but harmony might break on the rock of policy.

An international government would pronounce that under certain happenings this or that nation must

conform to certain well-considered international conclusions or regulations; failing such conformity, it would attempt to enforce upon the dissentient nation those conclusions. From one point of view this seems to be sound common sense; but we are bound to ask ourselves the question: What nation, what democratic nation, is going to agree to armed prevention or enforcement without at least a previous agreement of its Government, or, more probably, its Parliament?

The Nationalist point of view would surely be that no part could be taken in the operations proposed until they had been considered by the nation's representative body.

Presumably the executive work of an international government would be carried on by funds supplied in agreed proportions by all its constituents, and one can scarcely believe that any nation would continue to supply funds for its own international coercion. Of course, individuals do provide funds under legislation for the maintenance of law and order within their own national boundaries, and this includes the restraint or coercion of law-breakers, dangerous characters, of thieves, murderers and those doing or threatening violence to the persons and property of others. The funds are indeed partly provided from the incomes of the very persons for whose restraint or coercion they would be eventually employed in some cases. Again, both men and fighting appliances would be needed; but one can hardly see any future tendency toward the reduction of armaments or the maintenance of peace if international arms and monies are to be used for coercive purposes. On the question of restraint, defence, or protection, we touch different ground, for it is recognised that the maintenance of law and order

and the protection of individuals from outside attack must be provided for in the present stage of human development; otherwise there will be an insufficiency of nations in agreement to form a League at all.

All this logic-chopping, however, is beside the mark, and leaves us wandering in a circle. The varying Nationalist points of view must be combined in a World League of all nations united in moral array against evil-doing, injustice, tyranny, against the manufacture of killing appliances; the nations emulating one another in the endeavour to discover what objects of common advantage their League can support for the mutual advancement of its members and the general progress of enlightened humanity. Only in this way can the world secure the benefit of the Nationalist points of view; only thus can the knowledge and aims of all, even when in apparent or patent conflict, be made mutually blessed.

To a war-worn humanity these fine arguments, these weighings and balancing of theories make little appeal, promise little in the way of practical help; they savour perhaps too strongly of idealism. Yet let war-worn humanity—and that means you and me and the people we meet every day—realise that something has already been done; that not all idealists are dreamers. The League of Nations is out to abolish armaments; let us accept this very solid fact, if we will, as enough for one decade—since progress must needs be gradual. It is the only organised expression of the will of a combination of peoples with that as its object. And its opponents and critics can never turn its actually accomplished work into Dead Sea fruit if the common will of humanity be the force driving, inspiring and controlling that work. For, given the enlighten-

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ment which all "men of good-will" desire, the voice of the people becomes the voice of God.

Such a League, with all its crudeness (out of which it can only grow by the adherence of all the progressive nations) is the only practical co-ordinating body having any hope of dealing effectually with the question of armaments as between the more developed and less developed peoples, and at the same time of harnessing the Nationalist points of view to the general forward movement for the common weal of mankind.

### SECTION VII.—SOME ECONOMIC AND COMMERCIAL CONSIDERATIONS

THE heavy taxation under which we are all groaning, and which bids fair to become a burden which our stooping shoulders cannot bear, is chiefly the result of the expenditure on armaments.

The British Army in 1913-1914 cost thirty-five million pounds, and in 1921-1922, one hundred and eighteen million pounds. The number of men in the army in 1914 was one hundred and seventy-four thousand, and the number in 1921 was three hundred and forty-one thousand. The staff at the War Office considered necessary in 1914 was one thousand nine hundred and fifty-three, but in 1921, after the Great War had been over for two years, the staff numbered four thousand eight hundred and eighty-six. Turning to Navy figures, we find that in 1913-1914 the money spent was fifty millions, and in 1921-1922 ninety-one millions. The Admiralty staff in 1914 numbered four thousand four hundred, and in 1921 there were eleven thousand one hundred to carry on the Naval business.

Other money spent by British fighting departments, for example, includes in these three years one hundred and thirty-seven millions for Mesopotamia.

The costs of the armies and navies of other countries are also of enormous dimensions.

The United States in 1913-1914 spent sixty-three millions sterling on their army, and twenty-nine millions sterling on their navy, but in 1920-1921 they spent the enormous sum of two hundred and forty-five millions on the army, and one hundred and thirty-four millions on the navy. Our nearer neighbour, France, spent in 1913-1914 thirty-seven millions on the army, and twenty-one millions on the navy, whereas in 1920 she expended ninety-four millions on the army, in 1921 one hundred and thirty millions on the army and sixteen millions on the navy. It is a far cry from France to Japan, but here we find that at the other side of the world they are being drawn into the maelstrom of military expenditure, and laid out ten millions on their army, and eleven millions on their navy in 1913-1914, which had increased in 1920-1921 to twenty millions on the army and forty-nine millions on the navy.

Nothing is easier than to make suggestions for reforming the world and "moulding it nearer to the heart's desire"; but few things are more difficult than the working out of these suggestions. Particularly is this the case with the problem we are discussing. Statement and inference are simple: Armaments are evil—therefore abolish them. That is, admittedly, the ideal; but we have to deal with human nature and with long-established conditions in industry and finance, which can no more be changed in a moment than winter can change to summer. There must be,

obviously, a stage of transition; and this, as a rule, the idealist will not hear of. When he is asked to face this aspect of the problem and to consider details and agree to plans affecting economics, sanctions to law, restraint of criminals, industrialism, income tax and so on, he usually finds himself in a region of impracticable abstractions; asserting, for example, that gradually to decrease armaments by organised methods implies consent to and approval of armaments, though in a modified sense, and that the simple ideal of total abolition is far more practicable than gradual and controlled elimination. Many of the "Peace" extremists, not content to withhold their support, have actually engaged in propaganda against the Covenant of the League of Nations! Claiming also, theirs, as the best road to disarmament!

Against this in hopeful contrast must be set the splendid practical work done, and the solid advances made by the League of Nations Union—quite a young organisation—and by its many branches. Also by the International Arbitration League founded originally by William Randall Cramer in 1870.

These bodies realise that facts must be faced, and means discovered and developed which shall enable a sense of security to be maintained among those members of the community whose livelihood is affected or whose stability is endangered. To anyone familiar with business, and especially with the direction of manufacturing concerns, it is clear that instantaneous cessation of production would throw our social organisation into hopeless chaos—just as the sudden call for an enormous emergency production did, if not even to a greater extent. Governments and people, in determining policies and calling for supplies, have brought into



being huge manufacturing organisations, employing millions of persons, paying millions of money. One step towards progress would be to bring private as well as national manufacture and supply of all war material and equipment under a system of licensing regulations, thus causing private concerns gradually to discontinue their manufacture, and eventually stopping any private supply of war equipment. The control and manufacture by Governments alone of such material ought to form a most important item for the next meeting of the Assembly of the League.

This suggestion has been condemned on several grounds. One reason given against it is that it might cause certain Governments which hitherto have refrained from making their own war supplies to start departments for that purpose. This does not hold water; better even do that than maintain private or joint-stock armament businesses run for private profit and compelled to seek orders and expect wars to enable them to keep their workers employed.

Another objection is that anyone supporting the suggestion would be virtually recommending a Government to commit evil in making armaments at all. There are many others, more or less similar in character, which one has had to encounter in working for the end in view.

If the solution is to be delayed until the world becomes so enlightened that no person is dangerous enough to cause fear in another, and endangered by ridicule, or by the endeavour to compose "unanswerable" objections, nothing will be done. The question must be regarded from a rational point of view. Many firms in Great Britain, Germany, Belgium, France and America have been producing armaments for countries

other than their own. Each of the countries mentioned, for instance, contributed to the rebuilding of the Russian Navy in the years immediately preceding the last war. Battleships, like roll-top desks or easy-chairs, can be supplied to order, "fitted as desired to suit owner's taste"—a matter on which we shall have something to say later. When one considers the purpose of a battleship, this seems a curious perversion of industry. If it were once declared, by an international body like the League of Nations, and agreed to by its members, that the whole question of the production of war equipment, and its import and export, should be placed under licence, permission to manufacture being by international consent only, a real step towards the solution of the economic aspect of this problem would have been taken.

One phase of this economic question which calls for careful investigation is that of the general position of the great concerns producing armaments or war material. This point I once discussed with my old friend and one-time colleague on the National Peace Council, the late George Herbert Perris; he spoke with indignation of the fact that enormous profits accruing from the huge so-called defence expenditure of the British Empire went into private hands. So heavily did the matter lie on his mind that he was led to write a booklet, *The War Traders*, in which he treated "Patriotism and Profits," "The Sharing of £73,000,000," "Cosmopolitanism in Arms," and many other ramifications of the subject. He was a great Peace enthusiast, but his habit of thought did not necessarily include economic considerations. Although he roundly condemned the operations of the great armament firms, he did not always give due weight to the inevitable economic and

industrial chaos which would occur if such firms were suddenly closed down; in talking matters over, however, he would admit arguments on the other side, while none the less unshaken in his peace principles. The closing words of his pamphlet, *The War Traders*, which was first read as a paper at a National Peace Congress held at Leeds in 1913, are well worth quoting as a permanent reminder of a dangerous practice :

"Such is the modern trade of arms," he wrote; "and I will only add one word about it. If British democracy does not soon find a way of destroying this hydra, it will destroy British democracy." Perris' single-minded devotion to the cause was an inspiration to those privileged ones who could count him as friend.

The point made here is a portent not only to this country's democracy, but to all democracies; not only to one class, but to every class. The economic and industrial conditions of the whole world are dominated by the trade in armaments.

In reading the engineering papers, the journals devoted to various types of heavy machinery, and books such as Brassey's *Naval Annual* or Jane's *Fighting Ships*, we cannot help noticing the peculiar nature of the advertisements—peculiar, that is, when we remember that we are supposed to have reached an advanced state of civilisation and refinement. One firm proudly claims "the premier position for the supply of Armour-piercing Shells of the highest quality and of all calibres"; another asserts that its "production of Armour-piercing Shells" during the war "eclipsed all records." It seems, somehow, when we begin to muse upon the things that matter, a strange inversion, that an enormous industrial concern at our present stage of progress can boast of its magnificent

equipment for spreading death and wounds and suffering. Richard le Gallienne once said that he saw no reason to complain at the suggestion that man had evolved from the ape—"there was all the more reason to suppose that he would some day become an angel." Our comment must be that our progress is—shall we say—slow upon the angelic road.

Another page in one of these books contains an imposing list of the articles supplied by a single manufacturer, which is worth reproducing in detail. It runs thus :

"Naval, Field and Siege Guns of all Calibres ; Machine Guns, Howitzers, Anti-Aircraft Guns ; Turrets and Mountings for Marine and Land Service ; Armoured Car Equipments ; Gun Carriages and Limbers ; Military Wagons and Carts ; Aeroplanes ; Fuses ; Cordite Charges."

It is an inspiring catalogue. And the orders roll in, and the firm prospers, and here and there a few thousand people are wiped out, and . . . "it was a glorious victory." "War-vessels, Submarines, Destroyers up to 40 knots"—"Warships of the Greatest Dimensions and Power ; Battleships, Cruisers, Torpedo Boats, Destroyers"—so run the tempting advertisements of toys for civilised Governments to play with. And the tangled problem in which we are involved can now be more clearly appreciated—for in the provision of all this war material thousands of good fellows, working men and women, skilled and unskilled, are earning a living, with other thousands dependent upon them and their wages. To shut it all down suddenly (supposing such a step were possible) would be to cause untold misery, unemployment, starvation, perhaps revolution—that heartrending type of revolution

which comes not from greed or envy or jealousy, but from sheer hunger. It becomes more clear than ever, as we pursue this line of thought, that the idealistic solution is impracticable. Limitation, and steady deflection of war factories to more beneficial ends, are the only feasible preliminary steps to disarmament.

Although the whole of this section of the book may be said to bear upon the economic point of view, yet it may be useful to focus a few thoughts here, separately, and to summarise a part of the information detailed in preceding chapters. Finance is not everything, but we will take first the gradual growth of expenditure by the warlike departments of the principal countries. In the year 1900 the total expenditure on war affairs of the countries tabled in Part II, Section III, was £284,618,820; it had risen to £376,041,436 in 1911, and in the year 1919 had soared to the amazing total of £14,242,644,850.

This aggregate expenditure as far as can be ascertained in the whole period of twenty-one years from 1900 to 1920 inclusive (including the estimated amounts for Russia, France, Italy and Belgium in the period 1913-1920) is £61,534,155,196. Against this total of warlike expenditure, we place the totals for all other expenditure by the countries concerned, £46,249,174,637, and the appalling fact is revealed that about 60 per cent. of the total outlay of all these countries during a period of twenty-one years has been devoted to their fighting departments, swallowed up by armaments and kindred items. If we add war pensions payments and the interest on capital sums previously expended on actual wars and for fighting departments, the percentage would probably work out at about 75.

Our assertion that the whole world is dominated in

its economics and finance by the problem of armaments is thus substantiated. Humanity has evidently become enmeshed in a net which hampers its efforts in all interests which would benefit the race, and confines them within very narrow limits.

Apart, however, from finance, if there were space to make a proper study of the extent to which this problem affects the millions of workers the world over, it could be easily shown that the disturbances to employment which have become such a danger to the general social fabric are mainly attributable to it. The ideal form of employment is a steady production of necessities and such things as lead to the general welfare, pleasure, happiness or comfort; the production of war material does not answer to this test—it is essentially fluctuating. Take, for example, the case of Woolwich Arsenal, where comparatively recently men have been discharged at the rate of 300 a week—simply because the manufacture of war material is an unstable form of industry. The Members of Parliament for the borough of Woolwich, Sir Kingsley Wood and Captain Gee, V.C., urged upon the Prime Minister that “private firms could not be expected to retain men in their employ under non-economic conditions if the Government itself did not set the example.” The concern of the Members for the growing distress among their constituents—10,000 men were out of work and 11,000 on short time—is admirable; but the obvious, the irresistible comment is, why should any firm, private or otherwise, carry on under “non-economic conditions”? The term itself spells ultimate bankruptcy. We spend millions of pounds on a single battleship which in four or five years will be out of date, and in a few years more will be sold for breaking up. We spend hundreds of millions a year on

debt interest and pensions, while the reasonable outlets for human energy—educational facilities, healing science and research, home-building, the removal of unhealthy slums, the construction of roads, and a hundred other activities—are starved for lack of funds. We engage in a war, and for a moment there appears a deceptive prosperity among the people; every worker is needed; then comes peace, and we discover (what we ought to have *known* by now) that the whole country has become impoverished, that industry has become hopelessly disorganised, and that not only shall we ourselves feel throughout the remainder of our lives the result of war's madness, but that the burden of it will be grievous upon our children, and even upon their children. The whole position is indeed "non-economic," incredibly so.

Emergency production, being by its nature temporary, is always disturbing to industry, and the fierce demands of wartime bring this disturbing element to a fine art, to a fevered manufacture of inessentials. Supplies of materials are thrown out of relation, being diverted from their normal and legitimate uses and courses; consequently, sooner or later there is an accumulation which is not needed, an overplus prepared for the special emergency and not used because no one could see how much to produce. And it is by no means a simple or easy matter to use, either in materials or in men, that overplus which has been specifically prepared or trained for warfare. Let us see how, in several industries, the balance is disturbed—how unstable is the nature of war-industry.

*Timber.*—Owing to the shortage of imported timber during the war, the natural forest growths of European countries were laid under contribution, and many

hundreds of thousands of our trees have been felled and cut up to do their share in providing timber for gun carriages, trench lining, hutments and all other purposes for which wood could be employed in equipping and housing our men and in providing packages for the transport of ammunition and other fighting material. All the better timber available was commandeered for army, navy and aircraft purposes.

It is of great interest in this connection to note that the Government of the U.S.A. constructed a large number of wooden ships for use during the submarine warfare. And the surplus of these ships remaining for disposal at the end of the war found no purchaser although the sum expended upon them is said to have amounted to about thirty-eight millions.

*Housing.*—From time to time the problem of armaments has so occupied our industries and so absorbed labour and materials, that the construction of houses was discontinued. Hence the housing shortage, which, viewed from the angle of civilised progress, has become nothing but scandalous.

*Textile Industries.*—These are so involved with both war material and supplies for private purposes that it is not possible to suggest figures determining the amounts or values of material employed for our fighting departments.

It may be pointed out, however, that the main sources of production of certain cloths were wholly reserved by the Government during the war for their own use.

*Iron and Steel Industries.*—The Ministry of Munitions of Great Britain alone spent about £1,600,000,000 extra (beyond the normal demand) during the Great War, on things for destruction, and nothing in normal times can be expected to be provided to take the place



of that expenditure, or to *compensate anyone for its absence.*

• By far the greater part of this expenditure was upon things in which steel and iron predominated.

For example, 5,000,000 tons of steel were made into shells, sent through the air, and (unless duds) exploded into fragments.

The following illuminating piece of information was kindly supplied to me by the National Federation of Iron and Steel Manufacturers of Great Britain.

*“Of the steel produced during the latter years of the war, over 95 per cent. was used by the Government in one form or another, and probably between 50 and 60 per cent. in weapons and war materials, e.g. war vessels, guns, rifles, shells, etc. The remainder, while bought by the Government, was made into goods, which had a use in peace as well as in war, e.g. Merchant Ships, Rails, General Merchant Steel, etc.”*

No demand for this quantity of steel or for the other materials and labour expended for special destructive occasions can be anticipated in the ordinary course of commerce. It will be observed by reference to p. 64 that the demand for shell steel rose from about 2000 tons monthly in 1915 to about 183,000 tons monthly in 1917. It is an economic error of the first magnitude to use up steel in these disproportionate quantities, and the result of that error remains. We cannot compensate for it, and the whole world is suffering in large measure from this economic error, committed by the human race in the improper consumption of vast quantities of various materials.

Probably, in the absence of this uneconomic consumption, the demand for steel and other materials for normal purposes would have increased gradually,

spreading itself over a very long period before such great quantities were called for.

The quantities just mentioned are those of the British Ministry of Munitions alone; these figures may be multiplied many times before reaching the abnormal world-consumption.

*Labour.*—An approximate computation, arrived at by a number of processes and then averaged, of the wasted human effort during the Great War, is the employment of about 1,000,000 workers working forty-four hours per week for 3000 years !

Is it any wonder that we are all suffering from this gross economic error ? And be it remarked, economics are inexorable—there is no economic mercy for sins against economic laws, and the punishment is sure, bitter, steady, resistless and devastating.

The argument that "Disarmament" will cause unemployment is superficial. *Sudden* disarmament, as with any other immediate and violent deflection of an industry employing hundreds of thousands, would undoubtedly have very serious reactions in the industrial world; the greatest care and tact are required to plan any scheme for this purpose. But it is a fact that the works now turning out guns and munitions, and the dockyards now building war fleets, can be fully employed on the production of useful commodities without any very formidable difficulties. This has been done to some extent in the great Elswick Works on the Tyne, and Krupp's, the immense ordnance firm at Essen, is making no war material, but actually employing 18,000 more workpeople than it did before the war, who are busy at the manufacture of machinery for agriculture, public works, textile plant, electrical plant, locomotives, and the thousand accessories im-

plied by these generic headings. The whole question lies between productive and unproductive labour; and with wise leadership by the statesmen of industry and commerce the transition stage would be reached and passed with comparative ease and economic safety—certainly without causing an economic catastrophe such as is now upon the world.

We say “the whole question”; but there is another aspect which we can touch upon here only lightly, which yet has an intimate relation with the economic problem: it is the vast, shocking waste of human life—all the cares and anxieties of parenthood and upbringing gone, all the costs of education and training dissipated, all the potentialities in these fresh workers and thinkers brought to dust and ashes. Apart from, and in addition to, human griefs, these last few lines embrace an *economic* wastage which is simply immeasurable.

## PART III.—ARGUMENTS, OPINIONS AND STEPS TOWARD SOLUTION

### SECTION I.—A PSYCHOLOGICAL DIGRESSION

PSYCHOLOGY and armaments may seem remotely related—the one intangible, invisible, imponderable, the other material, felt in all directions, looming through the whole of our financial and manufacturing systems, weighed up in millions of tons and valued in thousands of millions of pounds sterling.

Is the relation, however, so remote as first thoughts seem to indicate? If not, where do these two apparently different subjects intersect? To bridge the imaginary gap it is necessary to consider concrete cases as well as abstract principles, and I take, first, one of these which may be familiar to many.

Probably one of the most talked of and least understood human beings during the late war was the “conscientious objector”—the man who, for some reason or another, and, from varied points of view, refused to use his own mind or body or to allow anyone else to use them as part of the general destructive plan. Before analysing the attitude of such men, let us endeavour to grasp more clearly the position which a great war enforces on the individual, normally free to act as he thinks fit.

The nations, through their governments, either have established the practice of claiming a certain part of the time of their male members for training in the arts

of arms, or in emergency have legislated that even untrained men shall undergo such training. Each nation claims the right to prepare men, *nolens volens*, for the army, navy or air services. Many such nations possess splendidly constructed fighting and defence ships, equipped with the finest machinery and the most marvellous instruments that engineering, electrical and chemical skill have been able to devise, which are veritable monuments to the insight and creative gifts of the human mind. The powerful hulls, driven by mighty engines, the innumerable mechanical and electrical appliances, the delicate and beautiful scientific instruments, the ingenious guns, shells, torpedo tubes and torpedoes—all these speak eloquently of the brain-work of patient, persevering designers and draughtsmen, of the skill and brawn of pattern-makers, iron-founders, machine-men, and engineers generally. And the nations decide to send their sons to man these ships, and the huge, silent mechanisms become almost endowed with life. Men and boys, with a disregard for their personal safety which has called forth tributes from our greatest writers and poets, give themselves unsparingly to the manipulation of these ponderous fighting units. One objective animates these devoted men on the bridge, at the engine-room controls, behind the guns, in the fighting-tops, the barbettes, the magazine; upon one end are all their thoughts and energies concentrated. Briefly, their country calls upon them to kill as many men of the opponent nation as they can, in as short a time as possible. The greater the destruction wrought by shell or torpedo, the more sweeping and effective the rain of lead from machine guns, the more accurate and rapid the manœuvring of ships and weapons, the more worthily

has the duty imposed on these good fellows by their fathers and mothers been carried out.

The naval illustration shall suffice; but the point applies equally to the artillery officers and gunners in the field, the sniper, the bomb-thrower, the men at the gas-projectors, and the not less gallant human birds circling over their appointed prey.

There were some men, young strong able fellows, who resolutely refused to enlist, and for whom the "conscription" law made exceptions.

But, it will be asked, what of the country's need for protection from the possible ravager and invader? And what of those who, in all sincerity, value the civilisation so far attained, and who believe that the differences in the psychological outlook of even European nations are so wide that the "culture" of one may endeavour to overwhelm their own? They believe that a sufficiently strong defence must be maintained to prevent this. They do not express their opinions publicly, as a rule, but give other and impressive economic reasons for the maintenance of large fighting departments, or quietly and tacitly support enormous armaments programmes. If these folk (to whom we give credit for absolute honesty) could realise the psychological effect of these programmes on others they might, we think, reconsider their position.

Returning to our main theme, those who had the strength to fight, the power and skill to make armaments, the scientific knowledge to use the more complex aids to destruction and defence, could not resist the call, and gave, as did the others, their all for their country in defence of their friends. To men acting in conscious obedience to the light and conviction within their hearts, human laws and arguments are of no avail,

for there is a greater, a higher, an over-ruling law which compels them. Away they go through fire and water. And so the conscientious objector could do nothing to help the war machine.

To many of these had clearly come the vision of the effects of war on their fellow-creatures, members of the opposing nations as well as of their own, and they recoiled from taking any part in tearing the souls out of the "temples of the living God" or causing men to suffer in a day-long, night-long agony.

To a large number of them came the call to Red Cross work, and hundreds of young men filled dangerous posts, working incessantly in the fighting areas to retrieve shattered bodies, and in the hospitals to aid in restoring them to life and strength.

Others would not even join the ambulance, because, *inter alia*, they could not be guilty of helping the army by restoring a disabled man to health and strength for further fighting. It is here, then, that psychology touches armaments, and prevents some from expending their skill in the production of implements of destruction, or their bodies in using them.

The time will yet come, in the gradual development of the human entity, when a wider and more advanced psychological outlook may play the decisive part in freeing us from this burden. Then the day will not be far distant when to arrest, reduce, or stop entirely the production of the apparatus of war might become the urgent business of the majority of the human family. Such thoughts may have animated the conscientious objector as he bore the jeers and taunts of his fellows, the cynicism of the tribunals appointed by his legislators for his relief, and the brutality of the harder men in the army as they strove to "break" him.

Others stand on a different plane. They refuse to share in an operation which they believe is *uneconomic* and *anti-social*; disclaiming religion, on the ground of sheer humanity they decline to assist in activities which run counter to the human interest, and progress, for which they work. This, surely, may be legitimately included in a consideration of the psychological aspect of armaments.

This chapter, being a psychological digression, does not pretend to argue the case fully, but simply endeavours to state it, to find its place in the whole problem of armaments.

There are many grades of men possessing all the degrees of conscience between clear sight derived from religious convictions or beliefs and humanitarian or economic principles. Of course those who from mere obstinacy and selfishness desire to avoid danger, discomfort or loss are ruled out of this consideration. To those who during the war had opportunity for conversations with conscientious objectors of widely varying characters, it appears certain that armaments and psychology comprise effects and causes that will act and react one upon the other to greater purpose as the years pass by, and as the light is kept pure and clear before all opposition or ridicule. One can quite easily see that a time may come, after people have studied for themselves the problem of armaments, when everyone engaged in the manufacture of chemicals, or in the engineering industries, will definitely choose his or her own course in using up Nature's elements.

What reply should we, each of us, give, if asked to say how we would prefer to employ the materials so plentifully contained in the earth's crust, so abundantly used by our factories, smelting works, foundries and



engineering shops? Most of us would agree that these ores and chemicals should be transformed by industries into appliances and apparatus designed for the saving of life rather than for its destruction, for easing human pain rather than increasing it, for the construction and equipment of human habitations rather than for their demolition, and for progress in the science of locomotion by land, sea or air for peaceful ends rather than for the transport and projection of shells and explosives. Our chemical resources we should prefer employed in the arts of dyeing and in the development of beautiful fabrics, rather than in the perfecting of chemical warfare between human beings, with all its attendant agony.

To that effect, most probably, would be our answer : the answer of the normal man. The table shown on p. 77 of this book, demonstrating two different ways in which these elements and chemicals may be used, will give great point to this. Our hypothetical question may seem absurd; our instance of common and fundamental considerations may seem unneeded; yet it is essential to bring home the fact that each human mind has a share of responsibility in this matter. It is easy to dismiss this point by saying that whatever our personal preference may be, we are compelled, in spite of our intentions, to follow the behest of others, and are hemmed in by an unyielding environment. True; but let us remember that the millions engaged in industries of all descriptions have wills and intellects of their own; whether it be as directors, designers, analysts, craftsmen, mechanics, labourers, or as financiers, all must share in the responsibilities of life as lived by their own nations, and in the temper and attitude of their nation towards others. In the development of such thought may it not be expected

that a new mental attitude would bring to birth that vital moment when the designer of floating fortresses may pause in his new scheme, when the draughtsman may halt his pen as it traces the details of that scheme, when the mechanic may stop his mill on a half-bored gun-barrel, and the chemist may hesitate to give to the world another secret wrested from the elements of nature; when the munition girl may glance down her row of brightly turned H.E. shells thoughtfully, and the packer may look up from the half-filled ammunition-case, when one and all, in silence unexpected, may be faced with the insistent question—Is this right?

Is it too much to hope, then, that each human mind, of whatever nation, may be brought to see that their day and generation need most the common service of humanity, and not the wasteful application of Nature's priceless gifts to mutual destruction? Why should we limit hope at all? The human entity is capable of infinite development—it contains the seed of the Divine, and is capable of learning and acting upon the Divine will. The day has surely passed when any large number of people would deny these truths. Only by determined effort can we bring about a condition of life in which those of good intent shall be able to follow their own preference in their handiwork instead of being compelled to obey others whose ideas are less developed. Let every citizen determine to help in the creation of this ideal; so shall the problem of armaments come every day nearer to its solution.

There is one permanent, silent witness to the folly of perpetual arming, stronger than any words can ever be: it is the sight of the war graves on the Continent of Europe in their sad thousands and hundreds of thousands. His Majesty, King George V, described

them as "visible memorials which will eventually serve to draw all people together in sanity and self-control," and, to those who have seen these pathetic evidences of war's inevitable desolation, there can be no more potent advocates of disarmament.

Reflection, after reading what the King of England said during his visit to the late battlefields, will soon show that psychology and the problem of armaments are intimately, nay, indissolubly interwoven.

## SECTION II.—SOME MEANS OF PROGRESS

It has been accepted throughout so many centuries that nations must arm themselves efficiently against one another that our ideas have become overlaid by the weight of the tradition, and, speaking generally, we have forgotten the analogy between the individual and the group. We have forgotten, that is, the simple fact that neighbours who live in friendliness have no need of accumulating the means of self-defence, and that as the temper or mood of one man towards another is the all-important factor in the general amenities of existence at close quarters, so the temper or mood entertained by one nation toward another is the all-important factor of their mutual relations, and, therefore, in the intimately analogous question of armaments.

Do not let us push past this point in too great haste, or give way to the tendency of to-day to pooh-pooh what some describe as "goody" or "sentimental," or "all that nonsense about goodwill, etc." This question urgently requires facing, because upon the human adoption of goodwill as a practice depends the future of the problem of armaments. Tables of the expenditure on armies and navies, and the extent

of naval and military and chemical warfare programmes, as well as the future details of losses in wars for the next quarter of a century, will depend directly upon this factor in human relationships. There is no need to be sentimental over it, but there is need to face it. Many speakers of greater or less weight have spoken about it in measured and flowing terms, but I want to copy what has very lately been said on the point by a man of long practical experience, tried in the fire of circumstance, who uses few, but plain, English words in clothing thoughts of great significance. Viscount Grey of Fallodon, speaking a week before Christmas 1922 in Queen's Hall, London, said :—

“ On what did public opinion depend in this matter? There was plenty of intellectual basis for urging that war should be prevented, but in democracies and in public opinion the surer and firmer ground of action was not right thinking but right feeling. He admitted that feeling alone was not enough. Good feeling often might produce very little unless it was supplemented with right thinking. But he did not believe they could get right thinking unless it was first preceded by right feeling. It was not the brain that put people's thoughts in motion, but the heart. The brain was the instrument by which they thought, but the heart was the motive power.

“ If peace on earth were to be secured it could only be done by goodwill among men, and if once they could get nations to believe that there was goodwill on the part of each towards the other their international difficulties would disappear. The greater part of those difficulties was due to suspicion and mistrust. It had been his hope that when they saw how widespread was the suffering

caused by the war not only in this country, but in every other country that engaged in it, there would come out of that community in suffering a community in goodwill. They did not see signs that that feeling had yet been the outcome of the war. International politics seemed much as they were before, but he could not believe that nations could have been through the experiences of the war without having got through it what had not yet found adequate expression—a better sense of the community of good between nations than they had before. *Anyhow, it was on that feeling, being dominant in public opinion* of different nations that the future depended. They were there that night to do what they could to promote that feeling.”

This relation, and the manner in which it is interpreted, will in practice mean either the continued use of commercial and industrial facilities in the engineering and chemical trades for peaceful and progressive purposes, or their sudden application to destructive and retrogressive ends. The very knowledge, the plant and organisation employed in chemical and bacterial work, as well as in the many ramifications of trade and transport, may in even a few hours become directed to the blotting out of human lives, instead of to the protection, reassurance and easement of humanity. Let us, then, beware, and help others to beware of suspicious tempers, of undue readiness to take offence! For this personal and individual work is the beginning of all widespread movements, and only a great movement of instructed popular opinion in all countries can meet the forces that are opposed to disarmament; forces whose originators are often sincere, but are influenced by the easily accepted

opinions of past centuries. The time has surely arrived when common sense may step in, and reason may prevail over the idea that every nation must surround itself with a *cheveux de frise* of deadly weapons, must spend the brains and strength of its finest intellects in devising still more accurate and comprehensive methods of killing men.

There are so many ways in which this immeasurable benefit might be brought near to practical accomplishment. If all human knowledge, all human progress in science and mechanics, could be exchanged internationally through some trusted organisation, and thus made available for the benefit of the whole human race, it would be less easy for one nation to suspect the uses to which another nation might be inclined to put fresh discoveries and new inventions. This is at present a purely academic, though not a hopelessly academic, suggestion, and for the time must remain an ideal; but it is not an illogical development from the immemorial custom of welcoming to our great Societies and Academies men of other lands who have distinguished themselves in the realms of science and art. Volta, an Italian, was made a Fellow of the Royal Society of London, a Member of the French Académie des Sciences, and an Associate of the learned bodies of other countries; Faraday, a Londoner, was decorated with the crosses of various Orders by Prussia and Italy, and was a foreign Associate of most of the scientific societies of Europe; Benjamin Franklin, an American, was a Fellow of the Royal Society and was honoured with degrees by the Universities of Oxford and St. Andrews; Ampère, a Frenchman, was elected a member of many learned Societies of other nations; and the list might easily be prolonged. Is there not

here the germ of an idea—the International Scientific Fraternity—which is not so impossible as at first glance it appears?

It is scarcely yet realised that, in spite of the blemishes in the Covenant, the meetings of the Assembly of the League of Nations mark the opening of a new era, so potent for good, fraught with such possibilities for the progress of the human race, as to be beyond description in mere words. What power can most surely direct humanity with all its wonderful energy and capabilities, all its genius, all its persistence, into the best and wisest channels? In meetings of Councils and Assemblies, Leagues of Peoples, Conferences, is not the Divine available? Is not the Divine willing, waiting, to be used? Why should not such gatherings pause awhile at difficult moments, waiting in silence for guidance? Who can say what impossible views could be reconciled, what wide gulfs bridged by a period of silent waiting upon the Divine Father of all, so that through His mighty spirit, moving, as it were, upon the face of the troubled waters, human prejudices and passion might be stilled; the half-truths, seen by national delegates for their own nation's good, might be transmuted into whole, full eternal truths for all. In such an atmosphere, it would be realised that there is a better way of settling international disputes than by the threatened use of armed forces.

Such a silent period of waiting could offend the religious susceptibilities of none, but all, whether Catholic, Protestant, Mohammedan, Confucianist, Buddhist or of whatever religious community, could unite without human intervention in fellowship, seeking Divine inspiration.

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Could not the functions of such meetings be *vitalised* and the conclusions be rendered of immeasurable value to the world's progress, if taken in such an atmosphere?

It is encouraging to realise that at long last something has been done to restrict the wastage of national energy and national resources on armaments. Even if it were only that the attention of all civilised communities has been drawn to the subject, it would be a step in the right direction; but more than this has been accomplished. The passing of Senator Borah's amendment to the Naval Appropriation Bill in the Senate of the United States, without discussion and without a dissenting voice, on May 25, 1921, was a memorable event in the history of nations, and that amendment ran as follows :

" That the President is authorised and requested to invite the Governments of Great Britain and Japan to send representatives to a conference which shall be charged with the duty of promptly entering into an understanding or agreement by which the naval expenditures and building programmes of each of the said Governments—to wit, the United States, Great Britain and Japan—shall be substantially reduced annually during the next five years to such an extent and upon such terms as may be agreed upon; which understanding or agreement is to be reported to the respective Governments for approval."

The Conference at Washington, following upon this invitation, may be termed an epoch-marking event. The opening speech by Charles Evans Hughes will stand out to the "disarmament" folks as the most important and remarkable pronouncement of our day



and generation. Those cynical souls who forecasted "another talking shop" soon changed their tone; even they began to realise that the intention to bring to a stand the insane competition in armaments was not a pose, but a "bedrock" determination rooted and grounded in the souls of earnest men. At last the world's desire for disarmament and better relations was clearly enunciated. The pronouncement speedily bore fruit at this Conference in practical international agreements.

Its gains may be summarised briefly here :

The Five-Power Naval Agreement, made between U.S.A., Great Britain, Japan, France and Italy, declares that till December 3, 1936, *i. e.* for fifteen years, the *capital ship tonnage* of these Powers shall not exceed—

	Tonnage retained.	Tonnage replaced.
U.S.A. . . . .	500,650	525,000
Great Britain . . . . .	580,450	525,000
Japan . . . . .	301,320	315,000
France . . . . .	221,170	175,000
Italy . . . . .	182,800	175,000

This implies an end to competitive naval construction.

The Four-Power Pact for the Pacific Ocean, made between U.S.A., Great Britain, Japan and France, settled a basis of agreement by which the danger of conflicting interests in the Pacific, and of war resulting therefrom, is greatly lessened. Incidentally, the conclusion of the Anglo-Japanese Treaty at this Conference was of great importance.

The Nine-Power China Treaty :

Adoption of the Four (Root) Rules, aimed to secure

Chinese integrity and the principle of the "open door."

A better prospect for China, and the promise made by Japan to evacuate Shantung.

An agreement was reached to prohibit the use of poison gases in warfare, and to restrict the use of submarines.

It is interesting to note a paragraph or two in an article by Mr. Archibald Hurd, which appeared in the *Daily Telegraph* of September 13, 1921.

"Whereas we possessed eighty-two capital ships on the eve of the war," wrote Mr. Hurd, "we now have only twenty-eight (or thirty if the battle cruisers *New Zealand* and *Australia* be included), and, in place of thirty-eight of these large vessels in commission, we now have only sixteen with corresponding reductions in cruisers, destroyers, submarines and auxiliaries. For the first time for over a hundred years there is not a single man-of-war of any type on the slips in this country. . . . We must convince the world that we are sincere in our desire for a limitation of naval armaments. We have reduced our naval strength to a minimum hardly compatible with the safety of the Empire; we have scrapped not only the Two-Power standard, but scores of men-of-war in the interest of economy; we have cut down our seagoing fleet from thirty-eight to sixteen capital ships, and, after five years' inactivity, we are laying down four capital ships to replace eight older ones, which are being disposed of. That is the challenge to economy which we make to the world on the eve of the Washington Conference."

These words, from an acknowledged naval expert, are worthy of consideration.

But from what ground did this growth spring ? The inspiration for this Washington Conference came from another body, the " Société des Nations," which, for all we know, may one day gain sufficient support to effect a slow but sure revolution in the world's ideas on international relationships. Thanks to the tireless efforts of a great American with definite ideals and objective, the Covenant was embodied with the Treaty of Versailles. Convoked by President Wilson, its first Assembly at Geneva on November 15, 1920, was an historic occasion; a gathering of earnest, thoughtful men, many of them specialists in various spheres, concentrated upon the welfare of war-ridden humanity. I shall not easily forget the occasion when, as a member of a deputation presenting Mr. Wilson with an address, I had the opportunity of meeting him. He was in London, *en route* for the Versailles Conference, and we saw him just after another address had been presented by Viscount Grey, Mr. Asquith and the Archbishop of Canterbury. After the little ceremony our brief but animated conversation with the President impressed us with the sincerity of his feelings and the depth of his determination to " get down to business " with the League of Nations. In the Covenant of the League the subject of our immediate interest here was treated in Article VIII, which may be quoted :

" The Members of the League recognise that the maintenance of peace requires the reduction of national armaments to the lowest point consistent with national safety and the enforcement by common action of international obligations.

" The Council, taking account of the geographical situation and circumstances of each Member of

the League, shall formulate plans for such reduction for the consideration and action of the several Governments.

"Such plans shall be subject to reconsideration and revision at least every ten years.

"After these plans shall have been adopted by the several Governments, the limits of armaments therein fixed shall not be exceeded without the concurrence of the Council.

"The Members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those Members of the League which are not able to manufacture the munitions and implements of war necessary for their safety.

"The Members of the League undertake to interchange full and frank information as to the scale of their armaments, their military and naval programmes and the condition of such of their industries as are adaptable to warlike purposes."

Thus the problem of the reduction of armaments has held a foremost place in the programme of the League from the first, and Article IX provides that "A permanent Commission shall be constituted to advise the Council on the execution of the provisions of Articles I and VIII, and on military and naval questions generally." In September of the same year the Financial Conference at Brussels had given a powerful lead to the League by passing unanimously a resolution "recommending most earnestly to the Council of the League of Nations the desirability of conferring at once and agreeing with the several

Governments concerned with a view to securing a general reduction of the crushing burdens which, on their existing scale, armaments still impose on the impoverished peoples of the world." Commission VI, to which the whole question of disarmament was referred, found that it was possible to agree on certain broad principles of action and to propose certain definite steps. Disarmament, they submitted, must be effected in three stages: (1) arrest of the continuing growth of armaments; (2) formulation of a plan of reduction; and (3) execution of that plan. And although the "definite proposals" and the final conclusions of this First Assembly of the League fell far short of the hopes of many members, the result was a distinct step on the road to reduction of armaments—a road which might almost be said to have been hitherto untravelled. It has been said that the League is the outcome of unpractical idealism. This, as Lord Robert Cecil points out, is a mistake. The League, he said in a letter to the *Times*, "is a sober and serious attempt to safeguard mankind from a repetition of the horrors and destruction of the late war. No more rigidly practical object could be conceived, and the fact that some of the advocates of the proposal were moved by humanitarian or religious motives—without which no great reform has ever been accomplished—does not make it less practical." And, in an admirable summary, he concluded: "It has been proved that representatives of between forty and fifty different States, of widely divergent culture, religion, language, race and history, can meet in one chamber and co-operate heartily, and even enthusiastically, in the cause of peace and goodwill among men. All this has been accomplished, not only without the assistance

of the United States, but in the absence also of Germany and Russia, and in a time of extreme difficulty."

In this last paragraph we may find another instance supporting the suggestion of an "International Exchange," wherein advancing human knowledge should be pooled for the benefit of all.

At the second Assembly of the League in September 1921, the Third Commission adopted a resolution instructing a temporary mixed Commission to make a general proposal with a view to the reduction of national armaments, to be drafted in definite form and submitted to the 1922 Council of the League. None voted against this, though some of the members refrained from voting. In the course of the debate upon this point Lord Robert Cecil said that the world wanted a definite plan and a standard reduction of armaments: "It is as vital to the League," he said, "as it is vital to the peace cause in Europe."

The work of the League of Nations in dealing with actualities, both originated by itself and committed to it by other international bodies, Conferences, etc., is of far too great a value to be stated in so brief a *résumé* as this, and its labours in the wider sphere of fostering humanitarian activities as between and within the nations will be recorded in history as one of the most far-reaching and important efforts ever made for the betterment of the human race. It seems, therefore, that fully within the province of the League would come some definite step which should be a precedent in the matter to which allusion has already been made—the transformation of metals and chemicals into the materials and apparatus of war. With the aim of elaborating this idea and bringing it at any rate within the realm of detailed discussion, and, perhaps,

of possibility, I have drafted a recommendation for submission to the next meeting of the Assembly, which, if passed as a resolution, could then be submitted through the members of the Assembly to various other Governments. It may be that such a resolution is too sweeping to come within the scope of practical politics; possibly also it comes too early in the life of the Assembly. Yet I submit that some step of this kind ought to be taken as soon as possible, putting the private production of war material on a definite basis, and, moreover, on a basis that shall bear the stamp of international approval. One meets the argument that resolutions of such a character are easily broken and even defied in secret by the reply that even if this were certain to happen, it is preferable to have on record a definite pronouncement of their joint attitude by members of the League.

This, then, is the suggested draft motion, I trust to be recommended by our own and other representatives, to be submitted to the next meeting of the Assembly of the League of Nations in September 1923 :

“ WHEREAS the Members of the Third Assembly of the League of Nations, being anxious to remove the risks involved by great armaments and deeply concerned by the extent to which the preparation of war material absorbs their national incomes, natural resources and the time and energy of their compatriots, deem it desirable to discourage the transmutation of chemicals, metals, timber and other materials into articles destined for the destruction of human life or the disablement of human beings in war,

“ THE Undersigned, being duly authorised, declare that they recommend to the Members of the League which they represent, that legislation

should be introduced by their respective Governments to carry into effect the following provisions, namely :

Every person shall be deemed to be guilty of a criminal offence who, without first having made application to the appropriate Government Department, and who, without the express authorisation and permission of such Government Department in writing first received, shall :

1. Manufacture, construct or prepare—

(a) Any gun, cannon, rifle, revolver, pistol, projector, mortar, torpedo-tube ;

(b) Any bomb, grenade, container, bullet or shell, torpedo, or any charge, cartridge, ammunition or projectile ;

(c) Any part or parts either simple or compound of, or for any of the articles specified in (a) and (b).

2. Take part by himself or with others directly or indirectly in—

(a) Any scheme, organisation or arrangement for the design, improvement, production or subversion of any materials for the production of articles enumerated in (a), (b) and (c), or of any parts either simple or compound therefor.

(b) Any organisation for the production of any solid, liquid, gaseous or powder substance, or any material or fabric of a vesicant, toxic, lachrymatory, or sternutatory character which may be used for the burning, blistering, stupefaction, poisoning, intoxication, blinding or affecting the sight or nerves of any human being.

(c) The modification, alteration or addition to, or of any plant, machinery, apparatus or



factory producing organic chemicals or dyes, so as to produce any of the substances enumerated in 2 (b).

(d) The manufacture of any vessel, case, cylinder, container, grenade, shell, or other article intended to contain any of the substances enumerated in 2 (b).

✓ 3. Manufacture, instruct or prepare or take part in the manufacture, construction or preparation by himself or with others directly of—

(a) Any propellant or other explosive or expansive substance for the projection or propulsion from any of the articles enumerated in 1 (a), of any of those enumerated in 1 (b).

(b) Any explosive, liquid or gas, or any of the articles enumerated in 2 (b) for the filling or charging of any of those enumerated in 1 (b).

4. Any person, company or syndicate of persons producing any of the above specified articles, substances, parts or things enumerated in 1, 2 and 3, under authorised permission or licence shall report correctly from time to time to the Government Department concerned all such manufactures, processes and the like, and shall not produce more than the quantities permitted by licence.

5. The quantities of the articles specified in 1, 2 and 3 to be produced in the countries of any Members of the League shall not exceed the quantities annually agreed upon by the League or by a Commission or Committee appointed by them."

It will be observed that the above suggested resolution goes very far, and raises the question as to whether Governments will undertake international supervision and control of the production of all such articles. At

the present time it is more than open to doubt whether even the Governments of Europe could be brought to enter into such an agreement. A beginning, however, must be made, and some such resolution, if brought before the meeting of the Assembly, might at any rate result in the formal and official repudiation by the leading Powers of the right of any individual to produce the articles mentioned without control.

Probably the most effective force for controlling the production of these things would be a national determination resulting from the conviction of the individual that it is more than time to end the wholesale transformation of chemicals, metals, and other materials into articles to be used for the taking of life and the maiming of human beings. A steady, solid change in the attitude and temper of peoples one toward another is, without doubt, the real sanction and assurance that in international laws affecting such manufactures will be found the most efficient safeguard. One of the needs which must be met, and probably will be best met by the League of Nations, when other important nations, now conspicuous by absence, have become members, is a medium for resolving differences of opinion on points which are understood to affect the honour or the vital interests of any country. In Europe particularly, such points continually cause friction, as we have quite recently seen, and will doubtless do so until affairs have become more settled. The clearing of the ground, the removal of temporary but formidable obstacles, cannot always be done through the same agency. Conferences on matters of principle, or on acute international problems, will be necessary for many years to come; but a steady, agreed procedure of isolating and defining a source of dispute

and then turning it over either to the League, or to some judiciary body set up by the League, seems to be the way along which progress lies. Much more might be said, but I will leave the subject of the League here, quoting in conclusion the opinions of three men who count for a great deal in the international movements of to-day.

Viscount Grey in his speech made in December 1922, already referred to, said :

“ Amid much that was disappointing since the armistice, there was to the good the formation of the League of Nations. That was but an instrument; but it had proved itself already a good instrument. It had settled some things like Upper Silesia and the relief of Austria, which he believed could not have been settled without it. The League of Nations had already proved that it made the settlement of some international disputes possible by peaceful means which Governments without the instrument of the League would have found to be impossible. That was much to the good. After all, the League of Nations was but an instrument, it would not, of itself, prevent war. Some one asked him during the election if he thought the League of Nations would prevent war. That was really a futile question. It depended upon the use that was made of it. Of itself it could do nothing, being but an instrument. If national and public opinion were not determined to prevent war the League of Nations would not prevent it; but if they were determined to prevent war, then the League was an instrument by which they could make that determination prevail.”

Lord Robert Cecil, M.P., who followed, said :

“ It was not enough to desire peace; they had to work for peace and to be ready, if necessary,

to make sacrifices for it. The fundamental doctrine of the League was that before any nation resorted to war it was bound to submit its dispute under the severest international tribunal, either to the Council of the League or to some other tribunal of arbitration, or to the new permanent International Court of Justice, so as to allow the dispute to be fully discussed and ventilated. That procedure had been tried, and had shown its efficiency to prevent war in the case of Albania. He was delighted that so much had been done at Lausanne towards the protection of minorities in Turkey, and to read in the newspapers that day how gradually the Powers there assembled had been forced by the logic of events to turn more and more towards the League of Nations as the only efficient means of establishing good relations in Europe. The League must have a real control over the arms traffic throughout the world. It was astonishing that while there was some control over the sale of liquor and dangerous drugs and things of that kind, yet the most dangerous commodity in the world, the instruments for killing fellow-men, were practically uncontrolled. If they secured that control the evils connected with the private manufacture of armaments would be immeasurably lessened. He urged the churches to put aside religious differences and co-operate in support of the League of Nations."

Now let us turn for a moment to glance at what may be called private enterprise in the cause of peace. At the very beginning of the war a "World Alliance for the promotion of International Friendship through the Churches," with thirty-eight delegates representing twenty-three nations, was formed, with Dr. Nehemiah Boynton, a Congregational leader in America, as executive chairman, and Sir William Dickinson as

British Secretary. This extraordinarily comprehensive organisation met at Geneva a month before the Washington Conference, its President being the Archbishop of Canterbury, and for some idea of its aims and its practical work we may take the words of the chairman in an interview given in the *Westminster Gazette*, September 1921; noting, as we read, that his interpretation of the relationship between nations follows precisely the line already expressed in a preceding chapter of this book :

“Our work,” said Dr. Boynton, “is quiet work, and does not depend upon great gatherings for its realisation, but upon the wide horizons of those interested in it, and upon the effective measures which can be put quietly into play. Underneath the vexed questions of labour, economics, finance, and even of diplomacy there is the basal and fundamental principle of relationship. If the relationship between nations is one of prejudice or any other deleterious disposition, even up to rank hatred, the recomposing of the world carries just in proportion as the spirit of a true and manly friendship between the nations can be recognised as the atmosphere in which alone real progress can be made. Just in that proportion we believe the spirit of helpfulness will prevail in the present turgid and tempestuous world situation.

“It is working in our own country,” he continued, “with strength and power. Through the World Alliance we circulated a petition directed to the President, asking him to use his influence in relation to the reduction of armaments. We received 20,500 signatures from ministers of religion, including Jews, Catholics and Protestants. I was directed to go to Washington and present it personally to the President. He received it with

courtesy and with apparent satisfaction, and told us that the questions upon his mind included that of armaments. He asked us to remember that there were a large number of things which he would like to do, but could not do so offhand because he was environed by State relationships and great international questions which had to be adjudicated. Therefore they must not be surprised if they did not hear anything of their petition for some time.

"Four weeks after our visit the Washington Conference was called. Though we are very far from feeling that our petition called the Conference, we recognise that 20,500 ministers, representing a point of influence and power, was a stimulating influence, and considered that was a mighty good bit of work in friendship.

"In general," continued Dr. Boynton, "we endeavour to stimulate the principle of friendship (1) by ensuring personal friendships between men of different nations, and (2) between Churches of different nationalities. Our organisation is absolutely non-credal, but it is intended to be composed of men who have accepted friendship as a religious principle, and capable of the noblest forms in the life of the world."

Such gatherings as this, though as it were unofficial, are full of promise, and play a large part in the quiet shaping of public opinion.

It is not possible to examine the work of all the agencies, both voluntary and Governmental, which are labouring in one way or another towards the solution of the problem of armaments. They may be classed, speaking broadly, as personal, corporate, voluntary and official, all pursuing different lines of thought and action. There are, for example, the personal efforts of those whose convictions—religious, humani-

tarian and economic—are directed chiefly to the development of human character and the formation of public opinion on the lines of individual abstinence from the manufacture or use of armaments, embracing conscientious objectors of many grades, socialists of certain views, and others. In peace time the propaganda-work of such people is of some effect in bringing others into the same line of thought and in war-time in strengthening their convictions and making them more prominent in the eyes of the public.

The voluntary League of Nations Unions, Peace Committees, Peace Societies, Peace Councils, Arbitration Societies and Leagues and similar bodies, are all attempting, not always in a co-ordinated manner, but with great diversity of opinions and modes of action, to lay foundations for a world order which shall make it practicable to reduce or abolish armaments. In problems of this kind it is simple enough to get down to elementals, and the plain, straightforward, simple minds of many men can see only these elementals and argue only toward the adoption of a life compatible with them.

From such an attitude of mind much is to be hoped, and unquestionably great good may grow from it. But at the same time we are in the midst of difficulties that are *real*, that *do* exist and must be allowed for and dealt with, and that in an appreciable measure prevent the adoption of simple solutions among the social tangles of the present day. The problem of armaments is not a simple one; it is one of the most perplexing of inter-people problems, and is not in the same category as, for instance, personal morality and chastity. It cannot be solved by the splendid visions of a few, of international relations based on Christian

principles; great as is the value of such visions, strong as is the momentum given by them to the progress of the race, the actual problem of armaments needs careful, business-like, statesmanlike study and analysis before it will yield even the first gleam of a promising solution. The attack must inevitably be step by step; otherwise results are either non-existent or fleeting.

The lines of progress sketched out up to the present can only be followed effectually after the present acute difficulties in Europe have been overcome. There have been a number of Conferences, which although unfruitful of direct results have nevertheless broken fresh ground, focussed the real difficulties instead of the hypothetical ones, and cleared the way to a considerable extent for a recognition of the real and actual situation which must be solved in Europe before genuine progress can be secured in reduction of armaments.

Probably one of the most noticeable utterances in this matter was made by Viscount Grey in the House of Lords on December 14, 1922. He pointed out clearly that the idea of conditioning the remission of debts owed to Great Britain by her late European Allies with the remission to the former by the United States of debts owing to them, was not really progressive, and could not make the prospect of recovering money more substantial. On this matter he said: "If by remitting not indeed cash payments, but the prospect of getting, some day or other, cash payments, we could do anything substantial to promote security and economic recovery in these countries of Europe which were our customers, we should be immensely the gainers."



It is quite clear that the continued state of uncertainty in Europe is the largest contributing factor in keeping up the expenditure on armaments, and in fostering the international suspicions which invariably result in money being spent through fighting departments.

On the same occasion Viscount Grey said that "one of the things which weighed upon the economic condition of Europe, as well as upon its sense of political security, is the expenditure upon armaments, or, I ought rather to say, the feeling that there is no certainty that there would not again come upon Europe competition in expenditure upon armaments." He went further and said that the Washington Treaty at the present moment was the one thing that stood between the world and renewed competition on Naval armaments, and pointed out that we ourselves with the United States and Japan had ratified it, but that it had not been ratified up to the present either by France or Italy.

The discussion in the House of Lords on December 14, 1922 happily showed a more real grasp of the selfish difficulties dominating the policy of Europe, and Mr. Bonar Law's speech in the Commons grappled well with a situation which has been very much cleared by previous conferences and the like. That speech offered some hope that the situation is now being more clearly understood by the nations parties to it, and is a hopeful sign that we are getting down to bedrock.

Is the condition of Europe only an European question? In some ways, yes, but in the majority of the considerations now impeding progress it is a world question. One hopes that at the next Inter-

national Conference, possibly to be held at Washington, but at any rate necessarily with American help, the Great Powers will grapple with the European situation, and that some means may be found of allaying suspicion, of easing the economic situation which threatens such dire consequences, and of reducing the expenditure in armaments and thus increasing confidence between the nations which are still laying out such an enormous amount of money and so much energy in this direction.

But the way is blocked by that bar to progress, the unrevised Treaty of Versailles. A great deal has been said about it, and probably no single political measure has ever been the centre of so much controversy as its immediate progeny of "reparations."

Some of our most substantial and progressive statesmen have said a good deal about this, and I want to reproduce just one strong opinion now about the Treaty.

I vividly remember twenty-three years ago meeting in Pretoria the (then) State Attorney of the South African Republic, General Smuts, in a private Conference with President Kruger and others, when making a general endeavour negotiated through third party channels to discover a means of settlement *before* the Boer War. If the British had been as open-minded and receptive as the Transvaalers, this endeavour might not have failed—but that is another story, and does not belong here. What I want to lay stress upon is the deep insight and perception of General Smuts. What did he say after signing the Treaty of Versailles on June 30, 1919?

"I have signed the Peace Treaty, not because I consider it a satisfactory document, but because it is imperatively necessary to close the war;

because the world needs peace above all, and nothing could be more fatal than the continuance of the state of suspense between war and peace. The months since the Armistice was signed have perhaps been as upsetting, unsettling, and ruinous to Europe as the previous four years of war. I look upon the Peace Treaty as the close of those two chapters of war and armistice, and only on that ground do I agree to it.

"I say this now, not in criticism, but in faith; not because I wish to find fault with the work done, but rather because I feel that in the Treaty we have not yet achieved the real peace to which our peoples were looking, and because I feel that the real work of making peace will only begin after this Treaty has been signed, and a definite halt has thereby been called to the destructive passions that have been desolating Europe for nearly five years. This Treaty is simply the liquidation of the war situation in the world."

And then he said :

"A new spirit of generosity and humanity, born in the hearts of the peoples in this great hour of common suffering and sorrow, can alone heal the wounds which have been inflicted on the body of Christendom.

"And this new spirit among the peoples will be the solvent for the problems which the statesmen have found too hard at the Conference.

~~"There are territorial settlements which will need revision.~~ There are guarantees laid down, which we all hope will soon be found out of harmony with the new peaceful temper and unarmed state of our former enemies. There are punishments shadowed, over most of which a calmer mood may yet prefer to pass the sponge of oblivion. There are indemnities stipulated, which cannot

be exacted without grave injury to the industrial revival of Europe, and which will be in the interests of all to render more tolerable and moderate." "

Later on (July 18, 1919), on the eve of his departure for South Africa, we find among his other invaluable utterances the following :

" I wish to add a word in reference to Germany and Russia in particular, as the situation is too grave to permit of any shrinking from the frankest expression of opinion.

" The brutal fact is that Great Britain is a very small island on the fringe of the Continent, and that on the Continent the seventy odd million Germans represent the most important and formidable national factor. You cannot have a stable Europe without a stable, settled Germany, and you cannot have a stable, settled, prosperous Great Britain while Europe is weltering in confusion and unsettlement next door.

" In our policy of European settlement the appeasement of Germany, therefore, becomes one of cardinal importance. We have to-day in Germany a moderate republic, which, in my opinion, deserves encouragement and support from this country. It has done its best to prevent anarchy on the one hand and military reaction on the other, and has done so with more success than I, for one, expected.

" Ebert's republic has been for months standing in the breach fighting the battle of European order against the growing forces of anarchy. The great issue will probably be decided in Germany for good and all. And Ebert deserves our backing and encouragement. Do not let us deal with Ebert as we dealt with Kerensky and Karolyi—with results beyond recall to-day.

" There are whole chapters in the Peace Treaty

which are as nothing compared to the supreme importance to this country, and to Europe of having a stable, moderate, democratic, republican Germany. In my opinion we should do our best to give it stability and to recognise it in the family of nations represented on the League.

"Russia is an even more obscure and difficult problem than Germany, and one on which no dogmatic opinion would be justified. But from all the information which has come into my possession, I am seriously doubtful about the sort of policy which we seem to be pursuing there. Russia can only be saved internally by Russians themselves, working on Russian methods and ideas. She is a case of national pathology, of a people with a sick soul, and only Russian ideas could work a cure. Our military forces, our lavish contributions of tanks, and other war material may temporarily bolster up the one side, but the real magnitude of the problem is quite beyond such expedients.

"Leave Russia alone, remove the blockade, adopt a policy of friendly neutrality and Gallio-like impartiality to all factions."

The clashing factors and cross interests in Europe have been too loud and insistent to enable these words of wisdom to be appreciated at their right value; but the point must be pressed home that the longer "reparations" remain indefinite and the treaties remain unrevised, the greater becomes the armaments problem from day to day.

### SECTION III.—WARNINGS AND OPINIONS—PAST, PRESENT AND PROPHETIC

A DISINTERESTED visitor from a planet where war was unknown would gather, could he listen to the

speeches of our public men, that war in this particular planet, Earth, was universally detested, a thing to shrink from, a spectre that haunted nations relentlessly, and that the burden of preparation for war was like a millstone round the neck of the peoples of the civilised world. He might legitimately wonder, therefore, what mysterious power this spectre possessed that we have not, by unanimous consent, put an end to its hauntings and its demands for money and lives. The day for this is doubtless approaching; meanwhile, let us glance at a few of the pertinent things that well-known men have said in our time on this subject, bearing in mind that behind their actual words of uneasiness and of prophecy there often lies a fuller realisation of possibilities than was available to their hearers.

Referring to the Hague Conference, Sir Henry Campbell-Bannerman on July 27, 1906, speaking in the House of Commons, asked if the Powers taking part were supposed to "disarm themselves entirely and present themselves without defence among their neighbours." "It is not so," he said. "We desire to stop this rivalry and to set an example in stopping it—we, who can do it, in regard to the Navy, with greater ease any than other Power, in order that we may relieve to some extent the burden that presses upon the peoples of all countries":

"The right honourable gentleman (Mr. Balfour) rather implied that we should wait for other people to set the example; and the late Civil Lord of the Admiralty said that we should call upon other nations to take the first step. It is to be an inverted Pool of Siloam. Instead of all the people rushing to be the first in the water, they are all to linger on the brink and urge their neighbours to go in.

In my judgment, we are the country, above all others, upon whom it is incumbent to show a willingness to check the pace with which these great armaments have been mounting up of late years, with respect to the Navy especially. No man here wishes the Navy to be weak for all the manifold duties it has to perform, duties which do not fall upon any other country in the world. We are all as keen as anyone to maintain the efficiency of the Navy, but extravagance never procures efficiency. You get efficiency only when expenditure is kept within reasonable bounds. But on these grounds we hope that the Government, having the opportunity, will have the support of the House of Commons in setting a very reasonable and moderate example—but still a very obvious, decided and considerable example—in the direction in which, we think, all nations suffering from this burden of armaments would do well to follow. We shall not be intimidated by any fear of unpopularity. As a matter of fact, I believe it to be a popular policy; but, if it were not, I should follow it all the same."

Fifteen years after this wise and statesmanlike speech came the Washington Conference, where, with the lessons of the greatest war of history to inspire it, disarmament was one of the principal questions discussed.

The year 1906 was prolific in notable utterances by well-known men on the subject, and in one case, at least, a point of view that is too frequently overlooked was clearly apprehended—that of the power of the public Press to influence opinion. To the credit of Dr. Barth, of Germany, this striking and suggestive plea must be placed :

"We see the Press of every civilised country always in arms. The next conference in The

Hague will treat the difficult question of disarmament. Let us begin with the disarmament of the Press. That is not so easy as it seems to be. A journalist is by nature a fighting man, and there are so many temptations. The influence of a writer goes as far as he is read. The readers are the masters of the writer; and many a writer finds it more convenient to follow his masters than to educate them, to make concessions to bad taste, sensations and national prejudices than to pursue noble aims, to elevate public feeling, to be just towards other nations and not a flatterer of national vices."

In the *Daily Chronicle* of January 22, 1914, Professor Brentano, another celebrated German, wrote strongly against the evil caused by the development of the private armament industry—an aspect of our theme upon which we have commented in another part of this book. "The Russian reactionaries and the German reactionaries work together," he said; "there is a community of interest and a community of sympathy between them."

"The greatest and most dangerous reactionaries of all are the colossal armament firms. Look at your leading firms, and the amount of money which they make—and the Krupps, and the Schneiders, and the others. The armament firms receive contracts, start new works, and then agitate to get more contracts to keep the works going. What is a million to them to subsidise newspapers and to subvert public opinion? They are at it all the time. They get richer and richer, while the people get poorer and poorer all the time. Armament firms are everywhere the danger."

"Of all the taxes that are laid and all the revenues collected," said Senator Hale, of the United States,



in 1906, "nearly two-thirds are spent for the military in a broad sense. We can get no appropriation for the merchant marine of the country for shipping; river and harbour Bills are arrested; public buildings Bills are arrested; and because we must spend so much money and such a proportion of the public treasury for the military." The same note was sounded, in the same year, by Sir Henry Campbell-Bannerman at the Inter-Parliamentary Conference, on July 23. After remarking on the preponderance of provision for military affairs in the Budgets of the great Powers, he went on to quote the words of the Emperor of Russia in convening the first Hague Congress :

"The financial charges consequent on this state of things strike at public prosperity at its very source. The intellectual and physical strength of the nations, Labour and Capital, are diverted from their natural application and unproductively consumed. Hundreds of millions are devoted to acquiring terrible engines of destruction which, though to-day they are regarded as the last word of science, are destined to-morrow to lose all value in consequence of some fresh discovery in the same field."

On the very next day, at the same Conference, Baron d'Estournelles de Constant, representing France, gave an urgent warning :

"If the Powers did not decide among themselves to act for their common interest, they would be forced to it, first by bankruptcy, and then by revolution. Let them hasten, therefore, to designate in each of their countries a committee of inquiry upon the questions; later, the most active of the members of each of these committees would be sent to The Hague to take part there in the

International Commission. The solution was urgent, public opinion was weary of seeing Governments incapable of reducing or arresting armaments; it protested, and the Inter-Parliamentary Union should propagate that protest throughout the entire world."

Mr. Lloyd George, addressing the Peace Congress of 1908 at the Queen's Hall, London, announced his principle as "less money for the production of suffering and more money for the reduction of suffering." "It really seems incredible," he said, "that it should be necessary in the twentieth century of the Christian era to hold a meeting in a civilised country to protest against the expenditure by Christian communities of £400,000,000 a year upon preparing one nation to kill another. It is still more amazing that the leaders of opinion should be more concerned with the perfecting and the rendering more deadly of the machinery of human slaughter than with setting up some tribunal for the possible adjustment of disputes between nations." Nine-tenths of these disputes and quarrels arise, he proceeded, from a misunderstanding of each other's motives :

"There are people in this country, and people in a very exalted position, and people of great experience, who are firmly under the impression that Germany means to attack us. There are people in Germany who are equally convinced that we are preparing to attack them. And from fear of each other we arm, and rush to the very quarrel which we are afraid of. . . . I was very interested to read one of the speeches of Richard Cobden delivered in 1853 at a Peace meeting in Manchester. There is not an argument which they advance now about Germany that they did

not then advance about France. France was preparing to invade us. France was going to attack us without a moment's warning; she would not even declare war. . . . If you go through the speech there is not a single scare suggested, not a single plan which it is supposed Germany is making now, which was not imputed to France in 1853. What sterility of invention! Not a single new scare has been invented for sixty years. And to be frightened by that really is rather humiliating for intelligent people. The fact of the matter is we are just afraid of each other; and we are building against each other. We are imputing designs to each other equally without foundation. The only thing that is real is the expenditure."

Mr. Lloyd George, who was then Chancellor of the Exchequer, went on to show that Germany's army was to her what our navy was to us—her sole defence against invasion. "She has not got a Two Power standard. She may have a stronger army than France, than Russia, than Italy, than Austria, but she is between two great Powers who, in combination, could pour in a vastly greater number of troops than she has."

"Here is Germany, in the middle of Europe, with France and Russia on either side, and with a combination of their armies greater than hers. Suppose we had here a possible combination which would lay us open to invasion—suppose Germany and France, or Germany and Russia, or Germany and Austria, had fleets which in combination would be stronger than ours? Would we not be frightened? would not we build? would not we arm? Of course we should. I want our friends, who think that because Germany is a little frightened, she really means mischief to us, to

remember that she is frightened for a reason which would frighten us under the same circumstances." \*

At a Government banquet given to the Delegates to the same Peace Congress, Mr. Asquith, then Prime Minister, demolished the argument that preparation for war is the best insurance against war. "Of all the deities in the Pantheon," he observed, "there is none to whom mankind, now as always, is more ready to pay the homage of lip-service than to the goddess of peace."

"It is said that your fighting units are numbered not by the thousand, but by the million; that every four or five years your battleships increase in the bulk of displacement and in the perfection of their armaments; the very completeness of the mechanism of destruction, the vastness of the scale upon which it is organised, must prevent statesmen and diplomatists from ever again contemplating the outbreak of war with a light heart. I confess I am not very much impressed by whatever grains or germs of truth may be latent in this idea. It certainly does not console me, when I survey the general situation, and find that the annual expenditure of the civilised nations of the world upon armaments is now somewhere between £400,000,000 and £500,000,000 sterling. These things are intended to be used. They are not accumulated and do not exist for ornament and display. They are intended to be used, and at some moment, by the sudden outburst possibly of an accidental fit of passion or temper, they will be let loose upon the world. Are we to acquiesce in this state of things, in that temper of futile and impotent fatalism which is now, as it always has been, the worst enemy to progress and reform?

I am not sanguine enough to think that the youngest among us will live to witness the advent of the day of universal disarmament. National security must always hold the first place in the thoughts and plans of those who are responsible for the government of any country. They would be false to the most sacred of all trusts if they allowed themselves to ignore or neglect these requirements."

"But," continued Mr. Asquith, "when that has been admitted, and the greatest allowance has been made for it, there remains the fact that no enterprise in the world is more worthy than that of the encouragement of peace by the reduction of the grievous burden of armaments."

In 1909 ~~Sir Edward Grey~~, speaking in the House of Commons, said :

"I would ask the people to consider to what consequences the growth of armaments has led. The great countries of Europe are raising enormous revenues, and something like half of them is being spent on naval and military preparations. You may call it national insurance, that is perfectly true, but it is equally true that half of the national revenue of the great countries in Europe is being spent on what is after all preparation to kill each other."

He justly characterised the result as "a satire on the civilisation" which it threatened to submerge, and he foresaw, as the consequence, national bankruptcy.

Commenting upon this utterance at the Peace Congress at Cardiff later in the year, Sir William Collins, M.P., who presided, observed that the assembly had gathered, as plain people, to consider the problem

which Sir Edward Grey propounded. "Some of us," he said, "have recently taken part in *ententes cordiales* and mutual hospitalities between the democracies of Europe and our own people."

"As a result of those visits and interchanges, alike of opinion and courtesies, we have a growing conviction of the good-fellowship, mutual respect and community of interest in social development which possesses the best minds of the middle and working classes of the States of Europe. We believe that by these *rapprochements* better understandings are developed, and a truer vision of international relations is obtained than through the distorting medium of a costly and cynical diplomacy."

Lord Rosebery, at the inaugural banquet of the Imperial Press Conference in the same year (1909) had spoken of "rattling into barbarism," and exclaimed, or declaimed, "We will have no more of this madness, this foolery, which is grinding us to powder."

The year 1909 was, as many readers will recollect, the time of a peculiarly surprising Germanophobe propaganda; and Dr. Murray Butler, President of Columbia University, alluded to this outbreak in these words:

"It is hard to reconcile the excited and exaggerated utterances of responsible statesmen in Parliament and on the platform, the loud beating of drums and sounding of alarums in the public Press, and the flocking of the populace to view a tawdry and highly sensational drama of less than third-rate importance for the sake of its contribution to their mental obsession by hobgoblins and the ghosts of national enemies and invaders, with the traditional temperament of a nation

that has acclaimed the work of Howard, Wilberforce and Shaftesbury, whose public life was so long dominated by the lofty personality of William Ewart Gladstone, and of which the real heroes to-day are the John Milton and the Charles Darwin whose anniversaries are just now celebrated with so much sincerity and genuine appreciation."

Warning and prophetic words were said by Lord Rosebery in the House of Lords debate on the Budget on November 25, 1909. He pointed out that "under the pressure of the great armaments which were eating out the heart of Europe, Europe was hurrying headlong to bankruptcy. He thought that perhaps not in his time, but in the time of those who were yet young, they should see bankruptcy produced by the insane competition in armaments." And in the same debate Earl Russell emphasised the vicious circle, where heavy armaments engender fear, and fear in its turn provides for still heavier weapons: "He stood alone in objecting to the increased expenditure upon the Army and Navy because it was unproductive, and tended to produce those very conflicts which it was said to be designed to avert. ~~Expenditure on social amelioration, on the~~ other hand, was productive of both direct and indirect economy."

These varied utterances of a few years ago, however, were by men who had no conception of what was to happen when the energies of modern scientists and engineers were concentrated upon the destruction of human life. Aeroplanes were still in the stage of experiment; the development of wireless telegraphy and telephony, whereby aeroplanes can be located or guided, in darkness or fog, was hardly begun. The

war which began in 1914 whipped up human, or inhuman, ingenuity to its highest pitch, and Mr. Lloyd George himself admitted that if there is another conflict it will be terrible beyond imagination. "The machinery of destruction," he said, "was becoming more terrible year by year, month by month. Just before the bells of peace were set ringing we had more horrible machinery than the world had yet seen. I doubt not that similar devices were perfecting on the other side. The ingenious mind of man will go on developing these horrors, and no one can conceive what the next war might be like. Europe might become as the north of France."

The miseries and tortures due to the use of poison gas are not forgotten. Inventors are inspired to make even more deadly discoveries, and the United States Chemical Warfare Service has announced a great triumph—a new poison liquid of which three drops on the skin will kill a man. Captain Bradner, the Chief of this Department, says that one aeroplane carrying two tons of this liquid could kill every living being within the space of seven miles long and 100 feet wide.

In other directions scientists are still at work upon these problems. It is reported that the French Air Service has invented aeroplanes which can be controlled by wireless and drop bombs automatically; a fleet of 300 such machines, each carrying 5 cwt. of bombs controlled from a single station in Paris, could within twenty-four hours unload nearly 2000 tons of their cargo in Berlin, Geneva or London. Torpedoes guided by wireless have been devised; and, as the science of wireless work is yet in its infancy, there is no limit, as far as can be seen, to its use in time of war.

Chemists and electricians probe into Nature's deepest



secrets, and their work in pure research, or in research applied to the arts and manufactures of peace, is marvellous. But, directed upon destructive efforts, it becomes appalling. Major-General E. D. Swinton, a British expert, asserts that "progress is being made" in the development of rays for lethal purposes. "We have X-rays; we have light-rays and heat-rays; we may not be so very far from the development of some kind of lethal ray which will shrivel up or paralyse or poison human beings." He prophesies also the coming of "germ" warfare. "I think it will come to that," he says, "and, so far as I can see, there is no reason why it should not. We must envisage these new forms of warfare, and, as far as possible, expend energy, time and money in encouraging our inventors and scientists to study the waging of war on a wholesale scale instead of thinking so much about methods which will kill a few individuals only at a time." Sir Auckland Geddes corroborates this discovery. "Another war," he said, "cannot be waged without horrors indescribable. New weapons have been devised, among them the use of bacteria to spread diseases which are too horrible to contemplate. It must not be."

The President of the British Association, Sir T. E. Thorpe, has set his face firmly against the diversion of scientific study to these uses. "An educated public opinion," he said, "will refuse to give credit to any body of scientific men who employ their talents in devising means to develop and perpetuate a mode of warfare which is abhorrent to the higher instinct of humanity."

"This Association, I trust, will set its face against the continued degradation of science in thus augmenting the horrors of war. It could

have no loftier task than to use its great influence in arresting a course which is the very negation of civilisation."

Major-General F. B. Maurice, of the British General Staff, must be admitted as an unprejudiced witness when he speaks in such a manner as this: "I went into the British Army believing that if you want peace you must prepare for war. I believe now that if you prepare thoroughly and efficiently for war you get war." It is a striking thing for a trained soldier to say, and it has its almost exact counterpart in a sentence of Major-General Tasker H. Bliss, of the United States Army. "Those of you are mistaken," he said, "who may think that there can be an enduring and effective association of the nations for the maintenance of peace so long as those nations are armed to the teeth."

One of the delusions of the world, said Dr. Frank Crane, at a recent luncheon of the English-Speaking Union, was that force is effective. "Every nation," he said, "was founded upon this mania."

"From the days of conquering Greece and Imperial Rome down to the days of the Tsar and the Kaiser, nations had tried to defend themselves by arms, and every one of them had been destroyed. The only nation that had not done this was the only nation that had continued; that was China. The real weakness of every country was its military forces, and the real strength of every country was its friendship with other countries."

And, following up the allusion to ancient Greece, our readers may well glance at a very fine passage from an article in the *Arbitrator* of December 1908, by Mr. J. M. Robertson, scholar and philosopher :

"When, forty years ago, the wise men who sought to reform and regenerate modern Greece set about their task, they put forth a plain and true doctrine. The ruinous institution of a useless army, which since the restoration of Greek freedom had devoured more than three hundred million drachmas, stood in the way of all real progress. Spending her scanty treasure thus, Greece was miserably lacking in roads, education, agricultural skill—everything that was required to lift her among the nations. The lesson was but half learnt; and to this day Greece remains poor and backward, despite the intelligence and enterprise of her people. Russian history tells the same tale. Both countries have sought armaments above all things, and in the end neither has profited in the slightest. Dreaming of glory, they have failed to attain it, and their moral and material progress has been of the slowest. Thus does history impassively verify the simple teaching of social science. Reform in history, as in the old motto, goes hand in hand with retrenchment of expenditure on armaments. The more a State does for its army and navy, the less it does or can do for its people."

This last sentence, for its concentration of essentials, its drawing to a focus of many arguments, is a memorable one.

But, so far, we have been quoting, in the main, opinions of a date before that great dividing-line of modern history—August 1914. In the period since then, what has been the trend of thought? Have our thinkers and workers seen any reason to change their attitude? The fact seems to be that those whose public utterances and writings in the public Press have most title to respect are still more deeply convinced that not by might, not by arming the nations, will

peace and goodwill come to the world. "There is only one way—complete international disarmament," said Count Czernin, Austria's Foreign Minister, one of the most noteworthy converts to the need for peace. The German Majority Socialists advocated, in 1919, disarmament and Dr. Hans Vorst pleaded for it as "the best way to secure a durable peace," not long before the termination of hostilities. And in the *Arbeiter Zeitung* of Vienna, on February 21, 1919, appeared a very remarkable indictment of the prevailing policy :

"We might have expected that after four and a half years of the bestial massacre which is called war, men would have been filled with such loathing of the implements of war that they would rather have cut off their hands than again have recourse to them. But the accursed intoxication of murder has now penetrated into the very life-blood of humanity, and so murder continues, although the war is at an end. . . . *There is only one means of releasing mankind from this creeping disease of murder, and that is to collect . . . and cast down into the deepest abyss all the implements with which men kill men, and which seduce them to fratricide. All the rifles, revolvers, machine guns, hand grenades, cannon, and whatever ingenious abominations the arsenals may contain for the purpose of destroying human life ought to be sunk to the bottom of the sea ; they ought not even to be used as old iron, for they are the embodiment of the most frightful madness of the human race. Let men be disarmed in order that their souls may be disarmed . . . this is what humanity needs. . . . So long as men possess arms they will fight ; first against the enemy, then against their brothers, and finally against themselves.*"

But, lest any reader may be inclined to discount such testimony by reason of its origin in former enemy

lands (though there is a sense in which opinions from such a source are particularly valuable), let us turn to names that are better known in this country. We find that approval of the policy of disarmament ranges from the tacit consent of Lord Balfour (Mr. Balfour, as he was at the time of the speech from which we shall quote) and the late Lord Northcliffe, to the passionate advocacy of the extreme pacifist. Mr. Balfour, on August 8, 1918, said in the House of Commons :

“ If you can once make it clear to German minds that *in modern civilisation the moral view of a majority of nations is sufficient to coerce recalcitrant members of human society*, then, and not till then, is there some prospect of that peace which the hon. gentleman, as well as everyone on this side of the House, so earnestly desires.”

Not to German minds only, however, does this apply. Lord Northcliffe was even more explicit; in an article entitled “ From War to Peace,” published on November 4, 1918, he showed the possible obverse of the competition in armaments very cleverly :

“ It will soon be found that to insist on an unduly large Army or Navy is to saddle one's own country with a huge expense; to insist on the disarmament of another country may be to present that country with a huge annual income that can be used in commercial rivalry. *So we may come to a condition in which if there be international security there will be a contest, not as to which country shall maintain the largest Army or Navy, but as to which country shall most completely disarm.*”

Lord Robert Cecil, speaking at Birmingham Town Hall on the twelfth of the same month, declared that

“without disarmament there can be no complete security against future war.”

The responsible organs of the Press also give no uncertain sound when discussing this vital question. *Truth* is proverbially level-headed; and its long history of impartiality and efforts constantly directed against slander entitle the following words, which appeared on June 18, 1918, to respect :

“Whether nations will ever cease to quarrel and fight no one can know, and it is idle to guess.\* But it is well within their power to defeat those who teach them that the best way to avoid a fight is to get ready for one; *and I cannot help thinking that the people of all countries will summarily stop the business of preparation for war before the world is very much older.* It may be, as many believe, an ineradicable natural instinct that impels men or nations to settle their differences by a fight. *But no natural instinct prompts men to submit permanently to all the discomforts and expense of preparing for a fight in time of peace, when they can see no one that they want to fight with and nothing that they want to fight about.*”

In the *Nation*, another weekly with a reputation above reproach, we find cogent arguments given at various times, but none more striking than those in an essay entitled “The One Thing Needful,” in the issue of November 16, 1918. From this we may quote several passages for the sake of their clear apprehension of points often in debate :

“*Let it be clearly and uncompromisingly said, the cause of war is armaments. Not disputes. Disputes can be settled otherwise than by arms, and would be, if that way were not open. But with the nations armed to the teeth every dispute*

is a menace of war, and the menace at last produces the war. . . . This country has had with the United States, since 1815, a series of disputes any one of which, as likely as not, would have caused war in Europe. Why did they not cause it in America? Because the frontier was not armed. Imagine a Canadian Army of millions confronting, along those 3000 miles, an American Army of millions, imagine fleets of battleships on the lakes; and should we have arbitrated the Newfoundland Fisheries, the Alaskan or the Venezuelan boundaries? No. Fear on both sides, if not aggression on one, would have precipitated a conflict.

“ ‘There are issues which men will never consent to arbitrate.’ There may be. That is a statement no one can confidently deny. But the ‘acid test’ of such an issue would be the fact that men would create armaments in order to fight it out. Nothing can prevent them doing so, as the Northern and Southern States created armies in 1860. But our main point is not affected thereby. Most wars have not been due to such insensitive causes and would not have been fought if the armaments had not been ready. *Disarm, and you have not indeed made war impossible, but you have put between you and it the most formidable obstacle that can be erected.*

*“This truth is simple, obvious, unassailable. Build up the armies again, no matter under what name, and you build up the whole system that makes war. Destroy the armies, and there ceases to be any need for them, since the only antagonist of each is the other.*

*“This question of disarmament is the key to every other—to the freedom of the seas, to the peaceful settlement of the disputes, to a co-operative development of the backward regions of the earth, to the very development of civilisation.*

*There is nothing utopian, extravagant, enthusiastic or unscientific about this statement. It tells the bare truth. Let the reader reflect on it, with the origin and conduct of this war still fresh in his mind, and with the call to the future clear in his ears, sounded by the voices of the dead. . . ."*

Quotation, however, could be kept up indefinitely, and it is time to make an end. Enough has been given in this chapter to prove that there is a vast body of solid, intellectual, responsible opinion, aware of all opposing arguments, against the arming of the nations which seems to us so futile a way of interpreting the lessons of the war, and of all wars throughout human history.

#### SECTION IV.—AN INDICTMENT, WITH AN APPEAL TO CITIZENSHIP

By its very nature this indictment cannot be logically likened to a charge against persons accused of crime, and any possible parallel between it and a criminal indictment must soon fail, leaving, however, a charge of most grave, if not criminal, error on the part of those responsible for the calamities that have already overtaken, and which threaten to overwhelm that phase of our existence often known as "Western Civilisation."

This civilisation, partly moral, partly material, owes its inception and later progress to great practical ideals emanating from the insight and inspiration of some few persons nearly two thousand years ago. The adoption by successive individuals of those high ideals gave it its driving force; the unselfish and often unseen work of its votaries ensured its growth. Laws, recognised as good and wise, slowly evolving through centuries, may



be traced in large measure to the persevering work of devoted and inspired men and women who were determined to leave to the world some scrap, however small, of organised progress towards those ideals. Often have such men and women sacrificed themselves in the cause of humanity; have willingly given their endeavours, their successes, their failures.

What, then, is the indictment?

Its first count is that with the lessons of the past plain before them, leaders of men have failed to learn wisdom; they have chosen the easier way of compromise with evil instead of that more difficult way of faith which would have meant uphill work and struggle against error. Often where they achieved great things personally and nationally they failed internationally, lacking that saving second sight, that vision, which would have given them international statesmanship instead of the limited range of the politician. Inheriting errors from their predecessors, they have handed on these errors to their followers, albeit leaving sometimes a grain of true work behind them for which their name is honoured.

Thus failure is the first count in this indictment; failure to grasp the truth—to take the right course at critical turning-points. Failure, the result of obscured vision, when the magic of heaven's light playing upon human affairs might have been seen and used, but was hidden from a self-veiled sight.

The second count in the indictment is that after outbursts of strife following these failures, the lessons of history have been lost. Rarely, if ever, yet, have agreements and treaties reconciled the disputes for which human brains and limbs have wielded the machinery of destruction. Examining the outstanding instances of

treaties made in modern times, can we not now see that they were foredoomed to fail, being drawn up under duress, under threats, under the shadow of armed forces? One of the weightiest charges which could be brought against treaty-makers, is that they have attempted, time after time, to employ *force* in forwarding constructive political programmes. So frequently, so persistently has this error been repeated that at long last it should be recognised that the use of force as a constructive method at such times is always fraught with evil and is usually fatal to the establishment of peace. It should be finally abandoned in the warning light of the past, to give place to the idea of progress by agreement; with no threat of aggressive action should agreement not be reached.

The third count is contained in a simple review of the warlike efforts made during many years. There is no need to disturb afresh the troubled waters of ancient history; we need only ask, how has mankind employed itself, and misapplied its energies, and resources, during the last quarter of a century? In twenty-one years all the nations of Europe, and some in Asia and America, have taken toll of their industries for the equipment of their "defence" departments to an extent which is truly staggering. Money to the enormous amount of £61,500,000,000 has been found for this purpose by fourteen nations; a sum which, with the pensionary burdens and the interest on debts incurred for armaments in the past, has absorbed three-quarters of the productive energy of the peoples. One brief glance at the evidence given by the nations themselves, in their statistical abstracts and accounts, is surely enough to convict them, and their leaders, of monumental folly. Where is all this money now? What are

the fruits of all those efforts of finance, design, technique—the whole gamut of misapplied endeavours? Where are the stately ships, the guns, the bombs, the angry squadrons of the air? What has civilisation gained by it all? Why work and strive at all, one may well ask, when our work is turned to dust and hate, to the production of starvation and agony and death wherever humanity and “civilisation” are found?

Moreover, let us remember that this money earned by great thought and toil has been diverted from its rightful ends in the furthering of human well-being; that it has produced not only direct results in starvation of the body, but also the starvation of all those splendid endeavours for human welfare of which humanity, in the bulk, longs for and approves. It has meant the starvation of research, of work in the great field of industrial science; the limitation of philanthropy, of education, in a word, of progress toward the ideal in a thousand different ways. And no statement of mere figures, no arithmetical calculation, can sum up this side of the account—the deprivation of humanity’s legitimate benefits and aspirations and the denial of its appointed destiny.

This leads us to the next count. Human nature is capable of great progress, of high ideals, of an intellectual and spiritual advance, so far only partly realised; capable of a great, sympathetic response to the Master of Life whose Spirit each body bears within it—capable of a life far above that of the lower animals, which still must obey primitive instincts and fight their way through life for their own existence and that of their offspring. Yet, from man, entrusted with the inestimable gifts of intellect and reason, have come the greatest weaknesses, errors and failures. In his wars

he has prostituted his intellect, perverted his reasoning powers, debauched his ideals; and the most terrible count in all this indictment is that although he has made great and wonderful things from the metals and salts of the earth, and learned many of Nature's mighty secrets, he has diverted this stream of knowledge to bring death and desolation. One of the greatest gifts from the Science of Metallurgy is the knowledge that the introduction into iron of a small percentage of carbon gives us the wonderful thing we call steel. But, alas! it has enabled us to make the bayonet with its keen edge fashioned deliberately for dreadful wounding, and many kinds of gun and cannon to throw farther and farther the deadly projectile. Chemistry has fathomed the secrets of synthetic combinations of material things, transmuting them into foul gases and terrific explosives, and "Blood and Iron" has become the world's great password. But mankind has never yet realised internationally the spiritual, living, divine forces which make of his material body a vital organism and give him power over Nature and himself. Shall he not learn, even yet, to work mighty wonders with his incomparable spiritual forces, as he has with the forces of Nature? Is not the best that is in man worth as much study, comprehension and effort as the worst that can be brought out of the material earth?

It is probably true to say that no science, business or profession has progressed to such an extent as the production of armaments and implements of destruction. Why is this? Surely because to no science, business or profession, has so much time, thought, invention, industry and money been devoted. The appeal which the facts given in this book inevitably makes to us is to devote our time, our thought, our

money, unweariedly to the solution of this, the greatest and most complex problem with which the human race has ever been confronted, and the increasing magnitude of which queries our claim to moral status in the great plan of the universe. •

The situation is so involved and compromising that one is almost impelled to apologise for the attempt to tackle it; yet it is of no help to assume an attitude of impotent fatalism. To take the easiest course—to say, as it were, “Let be: evolution will find a way out”—is to leave in full growth the poisonous plants, begotten of the expenditure on armaments, which are choking the life out of the human race.

Nor is it of any use to shrug and say, “This is the Government’s affair.” Any *movements*, if they are to be endowed with sufficient momentum to take effect upon the problem, must emanate from the united, determined effort of every citizen in every country. If, unhappily, our present-day civilisation should break and sink under this burden, it will be the result, firstly, of my default, secondly, of your default—of our tacit submission to a fatalism which believes that there is no way out.

So much has been written, here and there, on the armament and disarmament question since the termination of the war, that there is a danger of this book being regarded as merely a contribution to the academic discussion of a well-worn theme. If that happens, it will have missed its mark entirely.

The problem of armaments is anything but “academic”; word-spinning and the chopping of logic are completely alien to its gravity. It affects seriously every human interest—the life of humanity in general, family and domestic life, the pocket of the

taxpayer, the manufacturer, the employer, all those whose duty it is to control human effort wisely. More than this: to those millions, the world over, engaged in the processes of supplying the material needs of their fellows, this problem eventually signifies a choice between life and death; and it may be claimed rightly that no federation of employers, no business concern, trade union, or co-operative society is free from its handicap and burden.

Definite work by all these is urgently required; no *solvitur ambulando* will suffice. The spirit in which this work must be undertaken is that which inspired Robert Louis Stevenson when he wrote, in *Eldorado*:

“O, toiling hands of mortals, O unwearied feet travelling ye know not whither, soon, it seems to you, you may come forth on some conspicuous hilltop, and there, a little way further, against the rays of the setting sun, descry the spires of Eldorado. Little do ye know your own blessedness; for to travel hopefully is a better thing than to arrive, and the true success is to labour.”

These words have inspired many a heart when embarking upon what seemed a forlorn hope. But let us remember that as yet comparatively little real work has been done to remove this ever-increasing menace, which is a standing challenge to the higher capabilities of men and women. When we say that over twenty millions of men have been left disabled through the European conflict, we compress into a line of cold print the sorrow and pain of years. When we say that over eight millions of men—chiefly young men—were killed, we imply the mourning of millions of mothers and wives, the grief and despair of innumerable friends. No wise leadership, no statesmanlike diplo-

macy, can bring any consolation other than the formal recognition that they "died for their country," that they were wounded "on active service"—all honour to them. But there is one thing that wise leadership and true diplomacy, backed by citizens of every country, can do if they will—and that is, to make it for ever impossible in any civilised land for the nations to become decimated and impoverished by the flames of war.

The methods by which this essential end is to be brought about are numerous and varied, and, as has been shown in Part III, Section II, many great intellects are strenuously at work upon them, and an increasing number of people taking part in the movement. From economic, humanitarian and political circles the volume of effort gathers and may yet become a uniting influence among different religious communions, and tend to lower and weaken those barriers that have grown up between the great religious sects into which Christianity is divided; more important still between Christianity, Mohammedanism, Buddhism and the Eastern religions.

All the things that men do, derive their motive from inward tendencies or outward experiences, which are, for the greater part, constantly clashing forces. Those higher inward intuitions whereby men's souls talk to a silent world need bringing into play more than ever.

Hitherto, religion has been brought to bear but slightly, yet is it not true that the inner man is stirring, that the enormity of the armaments problem is moving the deepest thoughts of which human nature has hitherto been found capable, and is revealing a common need and a universal fact, in all religions, from those based

on the lowest superstition to those inspired by the highest spirituality? To be free from this burden is unquestionably one of the deepest aspirations of the human race at this stage of its development, and many religionists, in their own way, seem to be turning from belief in the weight of their war material to faith in the source of spiritual power, and to be asking for light, for guidance, for wisdom.

It is a truism to say that no religion fashioned by the human mind is complete or perfect, but the great morality of Mohammedanism, the beauty of Buddhism, the deep philosophy of other religions, all go a long way toward setting up that attitude of mind which is the necessary precursor to a solution of this problem. And upon those who call themselves Christians, whether Orthodox, Catholic or Protestant, presses more insistently the necessity of loyalty to the Divine Commandments, especially the *two great and all-embracing Commandments* as Jesus Christ gave them—laying the first strong and deep as the foundation of the second. For all of us, of whatever creed or faith, must now surely realise that economic, political and humanitarian considerations, important as they are, are little to be trusted, if God, the source of all inspiration and power for good, is left out or passed over. Efforts toward a solution, if made thus, will ever be found to be built on sinking sand, and, yielding to the pressure of evil and selfishness, will soon subside. Is not this revealed and proved all too clearly by the cost of armed "defence" as shown by the tables in pp. 31 and 38 of this book?

Accordingly, as we see visions and dream dreams, may they be inspired by eternal truth. The solution lies, however, not in offering dreams and visions



to a workaday world, but in schooling these visions and these dreams to a powerful, steady impact upon all those details that have made the problem so terrific and immense.

So—to work! “Let him that seeketh, seek till he findeth.”

# APPENDICES

Detailed tables showing the number of fighting ships launched by eight countries during the 21 years 1900-1920 inclusive, giving Tons Displacement, Horse Power, Armament with number of heavy guns 4" bore and upward, with torpedo tubes, light guns below 4" bore with quick-firers, machine-guns, etc.

Country.	1900.						1901.					
	No. of Ships.	Tonnage.	H.P.	Armament.			No. of Ships.	Tonnage.	H.P.	Armament.		
				Heavy.	Light.					Heavy.	Light.	
Great Britain . . . . .	17	31,375	136,250	70	145		22	204,822	366,550	309	318	
France . . . . .	12	38,855	117,620	86	140		23	41,294	117,738	117	124	
Russia . . . . .	20	75,328	167,980	156	282		28	55,974	177,470	163	240	
Germany . . . . .	15	44,828	121,690	147	180		13	58,501	115,050	150	178	
Italy . . . . .	3	945	18,000	6	18		6	27,708	65,000	56	84	
Austria-Hungary . . . . .	2	10,430	22,200	27	39		1	8,167	16,000	17	28	
U.S.A. . . . .	8	11,765	47,030	28	65		15	46,344	104,190	108	137	
Japan . . . . .	10	42,541	84,132	81	117		3	1,034	15,800	7	15	
Totals 1900-1 . . . . .	87	256,067	714,902	601	995		111	443,844	977,798	927	1,124	
1902.												
Great Britain . . . . .	23	97,268	198,540	184	199		38	152,607	338,150	278	415	
France . . . . .	19	44,770	121,894	119	138		19	30,916	122,635	86	136	
Russia . . . . .	23	39,361	143,400	100	195		10	34,623	123,200	94	150	
Germany . . . . .	15	33,356	114,322	108	141		14	59,459	141,260	146	185	
Italy . . . . .	3	7,944	25,580	25	32		nil	—	—	—	—	
Austria-Hungary . . . . .	1	8,167	16,230	17	28		2	17,613	33,197	31	51	
U.S.A. . . . .	9	8,716	53,480	32	65		8	64,440	127,510	103	237	
Japan . . . . .	12	16,640	83,800	54	91		5	10,444	29,130	35	35	
Totals 1902-3 . . . . .	105	256,222	757,246	639	889		96	370,102	915,082	773	1,209	

		1904.				1905.			
Great Britain	.	35	128,988	389,500	182	481	27	97,038	211,700
France	.	25	43,940	81,345	114	102	33	31,143	118,247
Russia	.	28	9,596	56,480	60	74	44	17,275	219,700
Germany	.	11	44,228	121,210	108	136	11	38,002	157,400
Italy	.	4	25,698	50,000	42	72	9	13,953	40,600
Austria-Hungary	.	1	10,430	18,340	18	26	6	11,612	36,600
U.S.A.	.	12	168,010	279,311	346	504	7	98,200	133,480
Japan	.	4	17,522	35,280	37	45	22	35,527	117,100
Totals 1904-5	.	120	448,412	1,031,466	907	1,440	159	342,750	1,034,827
									780
									1,306
		1906.				1907.			
Great Britain	.	27	86,253	139,406	142	168	35	134,254	370,100
France	.	52	19,838	160,510	176	138	27	34,792	129,813
Russia	.	26	79,215	156,050	178	208	11	28,997	83,550
Germany	.	16	63,526	183,750	145	201	17	15,530	179,000
Italy	.	15	3,470	48,360	43	42	12	24,591	73,000
Austria-Hungary	.	7	1,970	30,000	14	40	6	1,576	24,000
U.S.A.	.	5	45,443	63,250	79	126	5	11,650	48,500
Japan	.	22	40,598	160,170	104	134	9	56,825	116,000
Totals 1906-7	.	170	340,313	941,496	881	1,057	122	308,215	1,032,963
									707
									651
		1908.				1909.			
Great Britain	.	31	51,505	164,200	148	45	36	99,348	396,200
France	.	22	21,588	121,450	108	95	17	95,263	105,850
Russia	.	7	2,711	3,240	24	—	nil	—	—
Germany	.	18	99,703	241,250	196	160	24	107,683	364,000
Italy	.	8	30,401	67,660	57	68	4	1,640	24,000
Austria-Hungary	.	9	16,398	45,800	31	68	20	21,766	93,400
U.S.A.	.	3	52,000	59,000	46	88	15	48,581	137,540
Japan	.	4	2,155	26,860	11	11	nil	—	—
Totals 1908-9	.	102	276,461	729,460	621	535	116	374,281	1,180,990
									766
									559

Country.	1910.					1911.				
	No. of Ships.	Tonnage.	H. P.	Armament.		No. of Ships.	Tonnage.	H. P.	Armament.	
				Heavy.	Light.				Heavy.	Light.
Great Britain . . . . .	42	132,764	597,475	275	101	44	226,636	741,800	385	105
France . . . . .	9	21,395	69,050	57	50	15	136,025	136,480	147	52
Russia . . . . .	nil	—	—	—	—	5	93,260	198,000	140	58
Germany . . . . .	19	54,274	267,680	140	58	25	124,200	481,100	219	142
Italy . . . . .	3	20,164	38,000	41	25	22	76,025	165,700	152	69
Austria-Hungary . . . . .	11	15,672	46,400	41	64	2	20,279	25,640	30	24
U.S.A. . . . .	13	30,327	174,424	98	87	12	57,026	98,552	118	41
Japan . . . . .	3	26,900	68,000	53	19	9	33,722	101,200	77	29
Totals 1910-11 . . . . .	100	301,996	1,261,029	705	404	134	684,173	1,948,472	1,268	520
1912.										
Great Britain . . . . .	30	163,821	591,900	261	80	42	185,294	1,096,200	357	144
France . . . . .	20	56,614	168,235	164	56	14	77,384	157,740	178	54
Russia . . . . .	1	492	300	2	—	8	28,824	139,000	114	29
Germany . . . . .	23	91,891	356,500	162	94	19	132,264	327,750	180	100
Italy . . . . .	12	11,640	120,900	45	44	29	52,911	171,000	131	77
Austria-Hungary . . . . .	7	49,169	161,000	66	92	4	6,705	76,000	8	34
U.S.A. . . . .	9	6,715	93,364	64	39	11	8,029	94,574	92	10
Japan . . . . .	3	55,600	137,500	69	40	2	55,000	128,000	64	36
Totals 1912-13 . . . . .	105	434,942	1,619,699	833	445	129	545,411	2,180,664	1,124	484
1913.										
Great Britain . . . . .	14	121,280	561,800	178	204	58	183,973	662,000	297	340
France . . . . .	5	3,481	21,800	28	17	7	5,684	64,600	45	19
Russia . . . . .	12	36,554	312,340	129	50	21	100,504	737,300	336	89
Germany . . . . .	nil	—	—	—	—	nil	—	—	—	—
Italy . . . . .	15	14,994	210,510	117	30	11	5,806	96,020	47	10
Austria-Hungary . . . . .	nil	—	—	—	—	nil	—	—	—	—
U.S.A. . . . .	15	63,635	125,350	123	32	15	73,835	190,840	164	34
Japan . . . . .	2	30,930	41,000	36	4	12	38,335	157,000	89	48
Totals 1914-15 . . . . .	63	270,874	1,272,800	611	337	124	408,137	1,907,760	972	540

		1916.					1917.				
Great Britain	.	76	240,167	1,634,280	531	435	90	153,252	2,130,420	742*	539
France	.	30	17,671	67,100	35	85	47	37,159	493,020	206	149
Russia	.	18	52,676	158,240	128	64	17	82,428	504,040	273	63
Germany	.	nil	—	—	—	—	nil	—	—	—	—
Italy	.	25	10,410	161,060	88	36	28	10,205	160,900	104	47
Austria-Hungary	.	nil	—	—	—	—	nil	—	—	—	—
U.S.A.	.	14	10,931	110,680	128	20	30	117,079	333,490	312	79
Japan	.	10	39,333	203,000	109	18	6	34,890	107,000	69	10
Totals 1916-17	.	173	371,188	2,334,360	1,019	658	218	435,013	3,729,470	1,706	887
		1918.					1919.				
Great Britain	.	128	239,054	2,878,340	1,036	696	54	95,660	1,068,560	459	251
France	.	14	10,349	93,060	26	45	19	13,899	83,520	53	52
Russia	.	1	467	480	4	—	1	467	—	4	—
Germany	.	nil	—	—	—	—	nil	—	—	—	—
Italy	.	8	6,717	51,600	52	16	3	2,429	30,900	20	6
Austria-Hungary	.	nil	—	—	—	—	nil	—	—	—	—
U.S.A.	.	137	149,485	2,896,240	1,846	220	131	212,191	3,133,600	1,968	173
Japan	.	9	12,805	211,000	74	12	15	49,755	342,500	127	30
Totals 1918-19	.	297	418,877	6,130,720	3,038	989	223	374,401	4,659,560	2,631	512
		1920.					1921-22.				
Great Britain	.	5	21,875	257,000	61	27	<i>Note.</i> —Owing to the confusion caused by the Great War, the returns for 1918, 1919, and 1920 are not so definite as in earlier years. Figures for 1921-22 are not available for these comparative tables.				
France	.	13	13,081	66,020	28	35					
Russia	.	3	1,401	1,440	12	—					
Germany	.	nil	—	—	—	—					
Italy	.	7	6,300	189,000	56	14					
Austria-Hungary	.	nil	—	—	—	—					
U.S.A.	.	58	102,917	1,038,700	660	68					
Japan	.	21	73,360	892,000	222	52					
Totals 1920-21	.	107	218,934	2,444,160	1,039	196					

I have concluded that it is advisable to reproduce all the above figures for the purpose of demonstrating how a scheme of International Competition in Armaments becomes progressive. Summaries are given on page 311.

## EXPENDITURE AND DEBT TABLE

		1900.	1901.	1902.
		£	£	£
Great Britain	Army . . .	43,600,000	91,710,000	92,542,000
	Navy . . .	26,000,000	29,520,000	31,930,000
	All other . . .	74,087,086	72,101,890	81,664,395
	Debt . . .	638,919,932	703,934,349	765,215,653
France	Min. of War . . .	26,931,250	29,073,400	29,268,480
	Min. of Marine . . .	14,918,080	13,774,400	11,943,000
	All other . . .	108,028,640	105,220,200	106,761,520
	Debt . . .	1,033,549,902	1,032,534,566	1,031,131,455
Russia	Min. of War . . .	35,226,231	35,551,887	36,456,606
	Min. of Marine . . .	9,409,606	9,886,137	10,668,031
	All other . . .	154,781,163	152,399,976	181,632,363
	Debt . . .	653,748,000	674,751,000	701,303,000
German Empire	Army . . .	31,997,060	33,074,779	32,648,119
	Navy . . .	8,143,319	10,025,048	10,598,250
	Expeditions . . .	4,882,849	4,691,025	1,927,526
	All other . . .	64,839,772	68,522,148	71,854,105
Italy	Debt . . .	119,037,000	123,813,000	144,370,000
	Min. of War . . .	11,542,993	11,565,241	11,609,415
	Min. of Marine . . .	5,277,420	5,175,950	5,121,473
	All other . . .	53,119,833	54,464,296	57,546,537
Austria	Debt . . .	537,230,000	536,707,000	533,135,000
	Nat. Defence . . .	2,295,125	2,357,020	2,499,500
	All other . . .	70,830,875	67,092,980	68,972,500
	Debt . . .	367,498,000	377,779,000	378,783,000
Hungary	Min. of War . . .	1,426,625	1,523,083	1,640,333
	All other . . .	43,720,375	44,386,917	44,638,667
	Debt . . .	215,860,000	213,299,000	214,366,000
	Military . . .	28,677,292	30,727,917	23,886,875
United States of America	Naval . . .	11,745,417	12,705,208	14,229,583
	All other . . .	82,508,291	86,066,875	85,433,542
	Debt . . .	230,773,000	217,654,000	201,970,000
	Army . . .	7,633,476	5,954,964	5,043,084
Japan <sup>9</sup>	Navy . . .	5,934,050	4,485,858	3,705,354
	All other . . .	16,282,974	16,982,592	20,752,716
	Debt . . .	49,619,328	50,670,030	52,876,188
	Min. of War . . .	2,370,320	2,488,217	2,492,530
Belgium	All other . . .	20,596,008	21,556,909	22,121,713
	Debt . . .	108,341,966	112,757,094	115,761,322
	Nat. Defence . . .	1,379,542	1,296,126	1,401,200
	All other . . .	4,586,767	4,354,662	4,290,469
Norway <sup>11</sup>	Debt . . .	12,707,000	14,589,000	14,558,000
	Min. of War . . .	2,188,695	2,112,429	2,486,966
	Min. of Marine . . .	1,034,547	1,226,328	1,273,924
	All other . . .	5,169,764	5,159,708	5,514,635
Sweden	Debt . . .	18,772,152	19,396,241	19,260,725
	Min. of War . . .	616,852	626,174	686,297
	Min. of Marine . . .	413,786	416,562	420,781
	All other . . .	3,351,780	3,219,103	3,203,058
Denmark <sup>13</sup>	Debt . . .	7,530,143	7,891,988	7,677,746
	Min. of War . . .	974,255	815,740	898,299
	All other . . .	3,416,469	3,334,902	4,330,117
	Debt . . .	9,858,730	13,325,120	22,080,950
Bulgaria <sup>14</sup>				

## EXPENDITURE AND DEBT TABLE

		1903.	1904.	1905.
		£	£	£
Great Britain	Army . .	69,440,000	36,677,000	29,225,000
	Navy . .	31,170,000	35,476,000	36,830,000
	All other . .	93,641,981	84,693,209	85,713,875
	Debt . .	798,349,190	794,498,100	796,736,491
France	Min. of War	28,248,840	28,096,760	30,167,680
	Min. of Marine	12,187,680	11,718,560	12,640,480
	All other . .	103,452,480	105,725,680	105,465,840
	Debt . .	1,039,386,181	1,038,379,843	1,037,360,846
Russia	Min. of War	37,285,250	39,571,112	40,170,681
	Min. of Marine	12,105,806	11,997,537	12,398,737
	All other . .	173,105,944	237,410,351	285,709,582
	Debt . .	702,138,000	702,138,000	827,678,000
German Empire	Army . .	31,634,850	31,527,259	34,012,583
	Navy . .	10,881,195	11,142,836	11,999,471
	Expeditions	601,234	647,254	2,814,275
	All other . .	72,942,721	56,775,651	59,101,571
Italy	Debt . .	144,365,000	158,625,000	163,552,000
	Min. of War	11,822,022	11,397,879	12,152,800
	Min. of Marine	4,971,019	5,458,174	5,447,160
	All other . .	57,086,412	57,180,155	58,513,040
Austria	Debt . .	531,570,000	503,652,000	531,424,000
	Nat. Defence	2,575,750	2,715,875	2,713,799
	All other . .	69,350,250	72,062,125	73,530,208
	Debt . .	382,740,000	386,489,000	392,233,000
Hungary	Min. of War	1,550,083	1,605,375	1,656,375
	All other . .	46,184,917	49,034,625	48,018,625
	Debt . .	219,679,000	226,343,000	221,513,000
	Military . .	25,350,417	24,484,375	25,948,750
United States of America	Naval . .	17,316,042	21,565,625	24,634,375
	All other . .	90,734,541	105,297,000	99,438,875
	Debt . .	192,711,000	201,507,000	206,222,000
	Army . .	4,782,768	1,232,976	1,133,118
Japan <sup>9</sup>	Navy . .	3,684,038	2,102,628	2,388,024
	All other . .	16,992,588	24,924,108	40,414,440
	Debt . .	54,974,146	105,837,750	212,394,396
	Min. of War	2,558,898	2,545,830	2,523,872
Belgium	All other . .	23,560,125	24,987,273	22,536,068
	Debt . .	120,450,310	126,183,362	129,858,965
	Nat. Defence	1,187,952	1,022,441	1,067,080
	All other . .	4,302,423	4,304,536	4,511,508
Norway <sup>11</sup>	Debt . .	14,725,000	16,940,000	19,023,000
	Min. of War	2,699,788	3,117,261	3,090,383
	Min. of Marine	1,212,120	1,181,383	1,196,322
	All other . .	6,365,133	5,348,856	5,559,295
Sweden	Debt . .	19,178,562	21,330,227	21,156,589
	Min. of War	801,263	794,948	657,654
	Min. of Marine	419,622	421,791	426,663
	All other . .	3,182,783	4,287,084	3,625,770
Denmark <sup>13</sup>	Debt . .	7,376,844	6,464,193	6,042,801
	Min. of War	1,111,153	1,164,712	1,878,784 <sup>14a</sup>
	All other . .	3,366,790	3,394,740	2,764,348 <sup>14a</sup>
	Debt . .	10,559,340	11,213,920	14,200,080 <sup>14a</sup>
Bulgaria <sup>14</sup>				

## EXPENDITURE AND DEBT TABLE

		1906.	1907.	1908.
		£	£	£
Great Britain	Army . . .	28,850,000	27,765,000	27,115,000
	Navy . . .	33,300,000	31,434,000	31,141,000
	All other . . .	88,263,245	90,438,664	93,556,094
	Debt . . .	788,990,187	779,164,704	762,325,051
France	Min. of War . . .	34,381,969	32,878,200	33,410,760
	Min. of Marine . . .	12,236,080	12,628,160	13,251,400
	All other . . .	107,461,960	109,703,240	114,179,840
	Debt . . .	1,035,382,276	1,034,032,000	1,033,034,000
Russia	Min. of War . . .	41,708,225	43,103,819	49,146,256
	Min. of Marine . . .	11,861,856	9,319,293	9,932,675
	All other . . .	285,547,919	220,176,888	221,349,069
	Debt . . .	910,476,000	921,027,000	934,249,000
German Empire	Army . . .	36,719,280	29,475,118	40,481,561
	Navy . . .	12,634,001	14,788,654	16,938,090
	Expeditions . . .	4,513,957	10,284,665	85,459
	All other . . .	63,763,762	83,502,568	74,397,890
Italy	Debt . . .	180,263,000	193,044,000	202,860,000
	Min. of War . . .	12,150,760	12,521,360	13,279,920
	Min. of Marine . . .	5,382,800	6,405,240	6,533,920
	All other . . .	82,411,440	67,241,040	70,535,000
Austria	Debt . . .	528,099,000	523,614,000	522,298,000
	Nat. Defence . . .	2,807,041	2,937,041	3,283,833
	All other . . .	74,788,959	89,108,501	95,628,167
	Debt . . .	400,400,000	410,158,000	415,583,000
Hungary	Min. of War . . .	1,581,083	1,739,541	1,823,375
	All other . . .	50,313,917	56,571,459	65,619,625
	Debt . . .	225,690,000	229,175,000	231,382,000
	Military . . .	25,091,250	26,001,667	29,094,584
United States of America	Naval . . .	23,159,792	20,388,750	24,745,834
	All other . . .	105,231,958	124,138,538	138,777,582
	Debt . . .	200,924,000	183,041,000	195,444,000
	Army . . .	6,822,740	6,922,740	12,856,386
Japan <sup>9</sup>	Navy . . .	6,311,352	6,311,352	7,371,744
	All other . . .	34,122,060	34,160,908	41,266,870
	Debt . . .	223,282,896	228,615,864	230,131,000
	Min. of War . . .	2,916,136	2,972,406	2,693,572
Belgium	All other . . .	27,978,502	27,738,504	28,124,469
	Debt . . .	133,179,882	136,625,262	144,257,114
	Nat. Defence . . .	991,753	1,078,356	1,330,568
	All other . . .	5,108,270	4,928,248	6,306,055
Norway <sup>11</sup>	Debt . . .	18,822,000	18,597,000	18,294,000
	Min. of War . . .	3,081,103	3,044,514	3,089,376
	Min. of Marine . . .	1,230,619	1,346,367	1,406,998
	All other . . .	6,615,858	7,024,098	7,352,978
Sweden	Debt . . .	23,380,680	25,797,769	28,631,986
	Min. of War . . .	676,791	700,017	778,699
	Min. of Marine . . .	456,875	457,254	488,581
	All other . . .	5,190,417	4,061,597	4,732,500
Denmark <sup>13</sup>	Debt . . .	6,500,000	14,218,000	14,108,000
	Min. of War . . .	1,680,866	2,021,360	3,384,080
	All other . . .	4,252,080	7,363,520	5,643,680
	Debt . . .	14,717,880	14,521,560	17,981,360
Bulgaria <sup>14a</sup>				



# EXPENDITURE AND DEBT TABLE

		1909.	1910.	1911
		£	£	£
Great Britain	Army . . .	26,840,000	27,236,000	27,449,000
	Navy . . .	32,188,000	35,807,000	40,386,000
	All other . . .	93,264,395	94,901,611	104,160,667
	Debt . . .	754,121,309	762,463,625	733,072,610
France	Min. of War . . .	34,845,200	36,584,160	40,617,280
	Min. of Marine . . .	13,907,600	14,545,000	16,755,440
	All other . . .	118,690,840	121,747,600	124,543,920
	Debt . . .	1,020,441,000	1,018,448,000	1,016,409,000
Russia	Min. of War . . .	50,286,094	51,522,005	52,431,718
	Min. of Marine . . .	9,798,800	10,187,781	12,841,587
	All other . . .	215,157,100	211,362,214	235,104,605
	Debt . . .	955,765,000	953,188,000	945,553,000
German Empire	Army . . .	42,335,865	40,582,143	40,204,320
	Navy . . .	20,471,685	21,233,831	22,028,078
	Expeditions . . .	46,118	1,166,393	98
	All other . . .	97,746,332	85,709,633	80,423,504
Italy	Debt . . .	215,171,000	246,831,000	243,674,000
	Min. of War . . .	14,535,240	16,058,560	17,399,360
	Min. of Marine . . .	7,236,200	6,844,480	8,870,800
	All other . . .	74,988,360	75,752,200	80,395,800
Austria	Debt . . .	522,837,000	523,116,000	521,657,000
	Nat. Defence . . .	3,665,541	3,967,083	4,107,416
	All other . . .	116,486,459	116,922,917	121,060,554
	Debt . . .	447,712,000	504,643,000	510,028,000
Hungary	Min. of War . . .	2,005,000	1,988,750	2,289,916
	All other . . .	69,727,000	77,247,250	71,391,084
	Debt . . .	252,829,000	261,680,000	266,286,000
	Military . . .	34,030,005	32,952,709	33,824,375
United States of America	Naval . . .	24,232,500	25,827,017	25,150,209
	All other . . .	150,550,495	139,301,374	141,876,416
	Debt . . .	213,304,000	218,010,000	211,622,000
	Army . . .	14,464,110	10,828,830	10,335,048
Japan <sup>9</sup>	Navy . . .	7,301,058	7,246,692	8,551,680
	All other . . .	43,196,832	36,324,478	39,214,272
	Debt . . .	227,473,000	263,661,000	270,561,000
	Min. of War . . .	2,715,533	3,067,463	2,929,150
Belgium	All other . . .	28,732,580	30,110,787	29,507,907
	Debt . . .	149,101,410	153,564,148	157,436,782
	Nat. Defence . . .	1,165,497	1,182,615	1,287,850
	All other . . .	5,329,670	5,534,343	6,097,273
Norway <sup>11</sup>	Debt . . .	18,294,000	20,425,000	20,156,000
	Min. of War . . .	3,246,158	3,215,064	3,452,054
	Min. of Marine . . .	1,592,105	1,411,510	1,512,142
	All other . . .	7,861,144	8,254,915	8,500,851
Sweden	Debt . . .	29,246,117	29,857,205	33,672,010
	Min. of War . . .	898,825	1,089,432	1,200,237
	Min. of Marine . . .	554,123	644,602	653,598
	All other . . .	5,945,911	5,997,174	7,784,806
Denmark <sup>13</sup>	Debt . . .	16,764,000	18,659,000	19,554,000
	Min. of War . . .	1,839,880	1,547,680	1,764,080
	All other . . .	5,793,480	7,584,960	6,348,640
	Debt . . .	17,578,440	20,799,400	24,407,960

## EXPENDITURE AND DEBT TABLE

		1912.	1913.	1914.
		£	£	£
Great Britain	Army . . .	27,649,000 <sup>1</sup>	28,071,000 <sup>1</sup>	28,346,000 <sup>1</sup>
	Navy . . .	42,858,000 <sup>1</sup>	44,365,000 <sup>1</sup>	48,833,000 <sup>1</sup>
	All other . . .	108,038,100 <sup>1</sup>	116,185,930 <sup>1</sup>	120,313,969 <sup>1</sup>
	Debt . . .	724,806,428 <sup>1</sup>	716,288,421 <sup>1</sup>	707,654,110 <sup>1</sup>
France	Min. of War . . .	39,733,320 <sup>1</sup>	50,489,000 <sup>2b</sup>	235,240,000 <sup>2b</sup>
	Min. of Marine . . .	18,675,200 <sup>1</sup>	18,452,000 <sup>2b</sup>	22,480,000 <sup>2b</sup>
	All other . . .	134,552,080 <sup>1</sup>	79,520,000 <sup>2b</sup>	83,520,000 <sup>2b</sup>
	Debt . . .	1,014,416,000 <sup>1</sup>	1,012,422,000 <sup>1</sup>	1,010,428,000 <sup>1</sup>
Russia	Min. of War . . .	55,916,400 <sup>1</sup>	68,143,500 <sup>3</sup>	76,967,310 <sup>3</sup>
	Min. of Marine . . .	18,793,818 <sup>1</sup>	24,245,400 <sup>3</sup>	26,604,790 <sup>3</sup>
	All other . . .	260,012,782 <sup>1</sup>	252,985,000 <sup>3</sup>	274,493,180 <sup>3</sup>
	Debt . . .	939,430,000 <sup>3a</sup>	937,605,000 <sup>3a</sup>	1,050,706,250 <sup>3a</sup>
German Empire	Army . . .	46,093,759 <sup>1</sup>	58,020,900 <sup>4</sup>	318,191,300 <sup>4</sup>
	Navy . . .	22,956,714 <sup>1</sup>	23,054,500 <sup>4</sup>	58,329,600 <sup>4</sup>
	All other . . .	72,851,527 <sup>1</sup>	91,468,300 <sup>4</sup>	96,358,500 <sup>4</sup>
	Debt . . .	242,743,000 <sup>1</sup>	255,094,000 <sup>4</sup>	604,072,000 <sup>4</sup>
Italy	Min. of War . . .	22,571,600	29,121,280 <sup>1</sup>	25,836,640 <sup>1</sup>
	Min. of Marine . . .	12,393,560	15,146,440 <sup>1</sup>	12,475,040 <sup>1</sup>
	All other . . .	79,431,960	85,684,280 <sup>1</sup>	86,857,320 <sup>1</sup>
	Debt . . .	537,174,000	551,934,000 <sup>1</sup>	578,675,000 <sup>1</sup>
Austria	Nat. Defence . . .	4,285,208	4,500,000 <sup>6</sup>	210,000,000 <sup>6</sup>
	All other . . .	127,396,792	130,000,000 <sup>6c</sup>	130,377,300 <sup>6d</sup>
	Debt . . .	519,631,000 <sup>1</sup>	530,000,000 <sup>1</sup>	670,000,000 <sup>6e</sup>
	Min. of War . . .	2,514,875	15,798,278 <sup>7</sup>	85,838,964 <sup>7</sup>
Hungary	All other . . .	81,371,125	80,806,660 <sup>7</sup>	113,068,378 <sup>7</sup>
	Debt . . .	274,702,000	333,640,051 <sup>7</sup>	343,813,574 <sup>7</sup>
	Military . . .	31,468,333 <sup>1</sup>	33,876,875 <sup>1</sup>	36,616,667 <sup>1</sup>
United States of America	Naval . . .	28,414,533 <sup>1</sup>	27,936,042 <sup>1</sup>	29,279,796 <sup>1</sup>
	All other . . .	161,216,084 <sup>1</sup>	148,772,916 <sup>1</sup>	152,353,745 <sup>1</sup>
	Debt . . .	214,078,000 <sup>1</sup>	214,284,178 <sup>1</sup>	214,011,877 <sup>1</sup>
Japan <sup>9</sup>	Army . . .	10,710,000	9,790,368	9,734,880
	Navy . . .	10,247,328	9,568,620	9,837,492
	All other . . .	38,799,072	40,058,012	38,985,628
	Debt . . .	260,691,000	254,593,000	263,795,000
Belgium	Min. of War . . .	3,623,561 <sup>1</sup>	4,000,000 <sup>10</sup>	21,358,920 <sup>10</sup>
	All other . . .	32,217,344 <sup>1</sup>	36,000,000 <sup>10</sup>	20,550,000 <sup>10</sup>
	Debt . . .	163,384,770 <sup>1</sup>	171,091,994 <sup>1</sup>	184,513,342 <sup>1</sup>
Norway <sup>11</sup>	Nat. Defence . . .	1,295,000	1,309,389	1,464,222
	All other . . .	6,571,823	7,190,944	7,797,778
	Debt . . .	20,156,000	20,152,000	19,855,000
Sweden	Min. of War . . .	3,472,037	3,424,675 <sup>1</sup>	3,076,677 <sup>1</sup>
	Min. of Marine . . .	1,305,489	1,208,708 <sup>1</sup>	1,766,873 <sup>1</sup>
	All other . . .	9,842,512	10,157,134 <sup>1</sup>	10,549,899 <sup>1</sup>
	Debt . . .	33,455,538	34,586,693 <sup>1</sup>	38,657,479 <sup>1</sup>
Denmark <sup>13</sup>	Min. of War . . .	1,113,606	880,889	1,104,739
	Min. of Marine . . .	590,235	56,944	615,056
	All other . . .	8,848,012	9,102,000	5,146,316
Bulgaria <sup>14b</sup>	Debt . . .	19,813,304	19,813,000	20,048,000
	Min. of War . . .	4,829,392	7,874,141	3,694,446
	All other . . .	6,399,999	5,769,802	8,986,361
	Debt . . .	24,152,000	25,000,200	43,476,700

# EXPENDITURE AND DEBT TABLE

		1915.	1916.	1917.
		£	£	£
Great Britain	Army . . .	28,885,724 <sup>1</sup>	1,399,652,011 <sup>1</sup>	1,973,664,733 <sup>1</sup>
	Navy . . .	414,550,000 <sup>1</sup>		
	All other . . .	117,037,809 <sup>1</sup>		
	Debt . . .	1,165,801,702 <sup>1</sup>		
France	Min. of War	738,216,270 <sup>2</sup>	1,089,616,000 <sup>2</sup>	1,362,632,000 <sup>2</sup>
	Min. of Marine			
	All other . . .	174,000,000 <sup>2</sup>		
	Debt . . .	154,400,000 <sup>2b</sup>		
Russia	Min. of War	67,734,150 <sup>3a</sup>	1,526,700,000 <sup>3a</sup>	1,800,000,000 <sup>3a</sup>
	Min. of Marine	24,235,550 <sup>3a</sup>		
	All other . . .	242,000,000		
	Debt . . .	1,112,862,500 <sup>3c</sup>		
German Empire	Army . . .	1,078,490,000 <sup>4</sup>	1,058,620,500 <sup>4</sup>	1,715,490,200 <sup>4</sup>
	Navy . . .	75,954,900 <sup>4</sup>		
	All other . . .	153,281,800 <sup>4</sup>		
	Debt . . .	1,741,362,000 <sup>4</sup>		
Italy	Min. of War	106,904,520 <sup>1</sup>	3,210,872,000 <sup>4</sup>	4,926,505,000 <sup>4</sup>
	Min. of Marine	27,996,840 <sup>1</sup>		
	All other . . .	103,270,640 <sup>1</sup>		
	Debt . . .	654,749,000 <sup>1</sup>		
Austria	Nat. Defence	585,000,000 <sup>6a</sup>	1,307,875,000 <sup>6a</sup>	1,762,416,667 <sup>6a</sup>
	All other . . .	130,374,300 <sup>6d</sup>		
	Debt . . .	880,000,000 <sup>6e</sup>		
	Min. of War	156,860,487 <sup>7</sup>		
Hungary	All other . . .	120,585,117 <sup>7</sup>	274,900,121 <sup>7</sup>	280,000,000 <sup>7a</sup>
	Debt . . .	540,254,210 <sup>7</sup>		
	Military . . .	36,497,708 <sup>1</sup>		
	Naval . . .	29,733,750 <sup>1</sup>		
United States of America	All other . . .	155,661,875 <sup>1</sup>	32,475,625 <sup>1</sup>	53,801,670 <sup>8</sup>
	Debt . . .	227,114,168 <sup>1</sup>		
	Army . . .	8,945,400		
	Navy . . .	8,492,520		
Japan <sup>9</sup>	All other . . .	48,755,080	8,606,454	11,895,750
	Debt . . .	255,859,000		
	Min. of War	35,717,840 <sup>10</sup>		
	All other . . .	None		
Belgium	Debt . . .	201,574,262 <sup>10</sup>	53,576,750 <sup>10</sup>	53,576,750 <sup>10</sup>
	Nat. Defence			
	All other . . .	1,449,111		
	Debt . . .	10,122,778		
Norway <sup>11</sup>	Min. of War	23,407,000	23,499,000	25,306,000
	Min. of Marine	4,101,141 <sup>1</sup>		
	All other . . .	1,992,141 <sup>1</sup>		
	Debt . . .	17,557,870 <sup>1</sup>		
Sweden <sup>1</sup>	Min. of War	45,144,926 <sup>1</sup>	7,185,429 <sup>1</sup>	8,465,489 <sup>1</sup>
	Min. of Marine	3,019,117		
	All other . . .	905,030		
	Debt . . .	5,664,075		
Denmark <sup>13</sup>	Min. of War	21,813,000	2,543,712 <sup>1</sup>	3,204,143 <sup>1</sup>
	Min. of Marine	2,316,783		
	All other . . .	8,750,006		
	Debt . . .	53,559,126		
Bulgaria <sup>11b</sup>	Min. of War		1,131,891	1,419,097
	Min. of Marine			
	All other . . .			
	Debt . . .			
	Min. of War		7,126,214	10,372,908
	Min. of Marine			
	All other . . .			
	Debt . . .			
	Min. of War		25,609,000	32,727,000
	Min. of Marine			
	All other . . .			
	Debt . . .			
	Min. of War		10,047,023	25,186,101
	Min. of Marine			
	All other . . .			
	Debt . . .			
	Min. of War		8,045,131	10,329,778
	Min. of Marine			
	All other . . .			
	Debt . . .			
	Min. of War		83,125,860	129,538,583
	Min. of Marine			
	All other . . .			
	Debt . . .			

## EXPENDITURE AND DEBT TABLE.

		1918	1919.	1920.
		£	£	£
Great Britain	{ Army . . . }	2,402,800,000 <sup>1</sup>	2,198,000,000 <sup>1</sup>	{ 395,000,000 <sup>1</sup>
	{ Navy . . . }			{ 243,528,000 <sup>1</sup>
	{ All other . . . }	293,421,405 <sup>1</sup>	381,301,188 <sup>1</sup>	{ 1,027,744,928 <sup>1</sup>
	{ Debt . . . }	5,921,098,819 <sup>1</sup>	7,481,050,442 <sup>1</sup>	{ 7,875,641,961 <sup>1</sup>
France	{ Min. of War . . . }	1,761,908,000 <sup>2a</sup>	1,467,032,000 <sup>2a</sup>	{ 216,840,000 <sup>2b</sup>
	{ Min. of Marine . . . }			{ 40,280,000 <sup>2b</sup>
	{ All other . . . }	415,572,000 <sup>2a</sup>	525,124,000 <sup>2a</sup>	{ 501,880,000 <sup>2b</sup>
	{ Debt . . . }	5,898,880,000 <sup>2c</sup>	9,609,680,000 <sup>2c</sup>	{ 11,380,960,000 <sup>2c</sup>
Russia	{ Min. of War . . . }	1,427,046,410 <sup>3a</sup>	4,046,606,050 <sup>3a</sup>	{ 3,203,621,520 <sup>3a</sup>
	{ Min. of Marine . . . }	104,239,330 <sup>3a</sup>	246,934,250 <sup>3a</sup>	{ 910,436,200 <sup>3a</sup>
	{ All other . . . }	431,195,420 <sup>3a</sup>	592,926,350 <sup>3a</sup>	{ 996,618,000 <sup>3a</sup>
	{ Debt . . . }	3,361,572,000 <sup>3d</sup>	3,361,572,000 <sup>3d</sup>	{ 3,361,572,000 <sup>3a</sup>
German Empire	{ Army . . . }	1,331,638,700 <sup>4</sup>	846,602,400 <sup>4</sup>	{ 202,016,800 <sup>4</sup>
	{ Navy . . . }	153,590,500 <sup>4</sup>	55,120,100 <sup>4</sup>	{ 18,997,300 <sup>4</sup>
	{ All other . . . }	744,942,100 <sup>4</sup>	1,775,951,100 <sup>4</sup>	{ 6,060,873,700 <sup>4</sup>
	{ Debt . . . }	7,292,131,000 <sup>4</sup>	8,625,764,000 <sup>4</sup>	{ 11,681,912,000 <sup>4</sup>
Italy	{ Min. of War . . . }	705,890,742 <sup>5</sup>	836,735,477 <sup>5</sup>	{ 296,791,405 <sup>5</sup>
	{ Min. of Marine . . . }	750,749,809 <sup>5</sup>	896,443,304 <sup>5</sup>	{ 343,407,437 <sup>5</sup>
	{ All other . . . }	315,872,941 <sup>5</sup>	441,364,858 <sup>5</sup>	{ 883,444,414 <sup>5</sup>
	{ Debt . . . }	1,736,578,060 <sup>5a</sup>	2,147,193,930 <sup>5a</sup>	{ 2,902,975,416 <sup>5a</sup>
Austria	{ Nat. Defence . . . }	2,668,002,950 <sup>6a</sup>	1,778,700,000 <sup>6b</sup>	{ 424,357,000 <sup>6b</sup>
	{ All other . . . }	130,377,390 <sup>6d</sup>	130,377,390 <sup>6d</sup>	{ 130,377,390 <sup>6d</sup>
	{ Debt . . . }	4,535,292,000 <sup>6e</sup>	6,314,000,000 <sup>6e</sup>	{ 6,738,000,000 <sup>6e</sup>
	{ Min. of War . . . }	283,468,572 <sup>7</sup>	295,483,687 <sup>7</sup>	{ 257,398,539 <sup>7</sup>
Hungary	{ All other . . . }	206,447,638 <sup>7a</sup>	442,446,929 <sup>7</sup>	{ 675,695,285 <sup>7</sup>
	{ Debt . . . }	1,516,520,848 <sup>7</sup>	2,066,789,792 <sup>7</sup>	{ 2,426,717,375 <sup>7</sup>
United States of America	{ Military . . . }	1,188,037,917 <sup>8</sup>	1,931,921,250 <sup>8</sup>	{ 223,057,475 <sup>8</sup>
	{ Naval . . . }	285,516,250 <sup>8</sup>	420,634,583 <sup>8</sup>	{ 128,353,510 <sup>8</sup>
	{ All other . . . }	3,073,036,666 <sup>8</sup>	4,970,821,450 <sup>8</sup>	{ 659,040,885 <sup>8</sup>
	{ Debt . . . }	2,275,891,947 <sup>8</sup>	5,099,854,662 <sup>8</sup>	{ 5,062,083,330 <sup>8</sup>
Japan <sup>9</sup>	{ Army . . . }	12,590,472	12,184,818	{ 14,701,278
	{ Navy . . . }	17,211,276	18,842,970	{ 25,453,896
	{ All other . . . }	45,231,252	61,014,258	{ 68,391,714
	{ Debt . . . }	254,871,919	263,154,450	{ 284,943,252
Belgium	{ Nat. Defence . . . }	53,576,750 <sup>10</sup>	81,847,893 <sup>10a</sup>	{ 22,872,461 <sup>10a</sup>
	{ All other . . . }	None	608,280 <sup>10a</sup>	{ 25,171,057 <sup>10a</sup>
	{ Debt . . . }	344,415,600 <sup>10</sup>	798,152,654 <sup>10a</sup>	{ 1,000,828,386 <sup>10a</sup>
	{ Nat. Defence . . . }	2,583,833	3,027,500	{ 3,500,000
Norway <sup>11</sup>	{ All other . . . }	28,392,445	36,668,333	{ 45,000,000
	{ Debt . . . }	40,922,000	56,002,000	{ 62,778,000
Sweden	{ Min. of War . . . }	17,228,540 <sup>1</sup>	8,068,140 <sup>12</sup>	{ 8,445,053 <sup>12</sup>
	{ Min. of Marine . . . }	7,559,859 <sup>1</sup>	3,921,661 <sup>12</sup>	{ 4,174,242 <sup>12</sup>
	{ All other . . . }	74,134,279 <sup>1</sup>	35,173,391 <sup>12</sup>	{ 39,859,720 <sup>12</sup>
	{ Debt . . . }	60,344,288 <sup>1</sup>	87,055,420 <sup>12</sup>	{ 83,140,247 <sup>12</sup>
Denmark <sup>13</sup>	{ Min. of War . . . }	4,784,486	4,841,743	{ 2,141,375
	{ Min. of Marine . . . }	1,687,613	2,159,720	{ 1,387,209
	{ All other . . . }	17,470,679	29,489,704	{ 29,948,971
	{ Debt . . . }	33,520,000	43,362,000	{ 51,458,894
Bulgaria <sup>14b</sup>	{ Min. of War . . . }	31,892,413	13,980,708	{ 24,785,762
	{ All other . . . }	13,990,382	30,864,263	{ 75,903,582
	{ Debt . . . }	187,954,587	172,389,040	{ 131,016,917

SOURCES OF INFORMATION FOR THE FIGURES ON  
PAGES 182-188.

GENERAL.—With the exception of Bulgaria and Japan the figures covering the period 1900 to 1911 inclusive have been almost wholly compiled from Statistical Abstracts published by H.M. Stationery Office, London. Some of the figures in later years have also been compiled from these Abstracts, and from drafts of future abstracts. No reference numbers or marks are placed against the figures from that source.

OTHER SOURCES ARE AS FOLLOWS :—

1. Extracted from information on files at the Board of Trade Offices, London, for several countries.
2. France. Estimated from Votes of Credit during the years 1914 to 1917.
- 2a. France. Extracted from French Budgets.
- 2b. France. Expenditure 1913-1914. Debts, 1915, 1916, and 1917, figures supplied by "Agence Financière du Gouvernement Française."
- 2c. France. Debts of 1918, 1919, and 1920, *Statesman's Year Book*, 1922.
3. Russia. 1913-1914. Royal Statistical Society, London. (From Russian Budgets.)
- 3a. Russia. Debt of 1912, 1913, 1916, and 1917, all Expenditure of 1915, and warlike expenditure of 1918 and 1919, supplied by G. A. Pavlovsky, Russian Economic Association, London.

- 3b. Russia. Based upon semi-official information, but figures not reliable. Depreciation of rouble in 1918-20 helps to swell the total.
- 3c. Russian Debt, 1914, 1915, taken from *Statesman's Year Book*, 1922.
- 3d. Bogart's estimate. *Note*.—The Russian Debt was repudiated as at 1917-18, and has been assumed to stand at the same figure as 1917.
- 4. Supplied in full by German Embassy in London. The extraordinary depreciation of the mark seriously inflates the totals of 1919-20.
- 5. Italy. Expenditure 1917 to 1920. Supplied in full by Italian Embassy in London.
- 5a. Italy. Debt, 1917 to 1920, from the Italian Official *Estratto della Gazzetta Ufficiale del Regno d'Italia* of 1917, 1918, 1919, 1920.
- 6. Austria. National Defence, 1913. Estimated on average from 1912 Budget; 1914 is taken from the 1914 Budget.
- 6a. Austria. National Defence, 1915 to 1918 inclusive. Estimated from amounts voted from time to time for war purposes.
- 6b. Austria. 1919 and 1920. No figures available and amounts estimated by the writer on the assumption that the shrinkage in this class of expenditure is on the same basis as that of Germany. This probably leaves the figures much on the high side for Austria under the circumstances; they are also inflated by depreciation of currency.
- 6c. Austria. 1913, estimated by the writer.
- 6d. Austria. 1914, taken from 1914 Budget.
- 6e. Austria. Estimated by Bogart that the Austrian Debt, 1914, was £670,000,000. As no yearly

figures thereafter are available, the debt has been estimated by the writer to be increased annually by the warlike expenditure.

7. Hungary. 1913<sup>a</sup> to 1920. Ministry of War and other expenditure for some of these years compiled from figures supplied by Hungarian Minister of Finance through British Legation, Budapest.
- 7a. Hungary. 1917-1918. Expenditure on other than war, estimated by the author from averages of figures under (7).
- 7b. Hungary. 1917. War estimated by author on average. Since the Hungarian figures were made up and after going to Press, some revised figures have come to hand, but they do not materially affect the general totals.
8. United States. 1917-1920. From U.S.A. Statistical Abstract of 1920, year ended June 30. The "all other" expenditure figures for 1918-19 appear to include a large sum—probably £3,000,000,000—for abnormal Treasury payments on war pensions and other items which justifiably could be described as "warlike" expenditure.
9. Japanese Embassy in London. (All figures.)
10. Belgium. *Annuaire Statistique* 1922 gives the Belgian Debt figures from 1914 to 1918, the increase being devoted to warlike expenditure. Apparently no other expenditure for any other purposes has been recorded by Belgium during the War. The increment in the debt has been averaged as warlike expenditure over the years 1914-1918 inclusive.
- 10a. Compiled from Belgian official figures obtained by the courtesy of the Foreign Office, London.

11. Norway. Complete figures supplied by M. M. Mjelde, O.B.E., representative of the Norwegian Foreign Office, Press Department, London. The figures of debts for 1900 to 1920 are extracted from the Norwegian Official Publication, *Økonomisk og Finansiell Statistikk*.
12. Sweden. 1919, 1920. From Swedish Legation, London.
13. Denmark. All years extracted from Danish returns at Royal Statistical Society in London and the Board of Trade, London.
14. Bulgaria. 1900 to 1904. From private friends in Bulgaria.
- 14a. Bulgaria. 1905 to 1911. Compiled from returns at Board of Trade.
- 14b. 1912 to 1920. Supplied by Bulgarian Legation in London.

(Summarised tables of these figures are given on pp. 38-39.)



Table showing some current rates of exchange at about the middle of each calendar year from 1900 to 1920 inclusive.

Year.	France.	Russia.	Germany.	Italy.	Austria.	U.S.A.	Japan.	Belgium.	Norway.	Sweden.	Denmark.
1900	25-33	24 $\frac{1}{2}$	20-69	27-5	24-54	49 $\frac{1}{2}$	—	25-42 $\frac{1}{2}$	18-50	18-50	18-49
1901	25-37 $\frac{1}{2}$	24 $\frac{1}{2}$	20-62	26-67	24-26	49 $\frac{3}{4}$	—	25-38 $\frac{3}{4}$	19-40	18-41	18-39
1902	25-37 $\frac{1}{2}$	24 $\frac{1}{2}$	20-62	25-80	24-25	49 $\frac{3}{4}$	—	25-36 $\frac{1}{2}$	18-40	18-40	18-40
1903	25-36	25 $\frac{1}{2}$	20-60	25-46	24-21	49 $\frac{1}{2}$	—	25-38 $\frac{1}{2}$	18-40	18-40	18-39
1904	25-33 $\frac{1}{2}$	24 $\frac{1}{2}$	20-59	25-48 $\frac{1}{2}$	24-19 $\frac{1}{2}$	49 $\frac{1}{2}$	—	25-38	18-50	18-50	18-39
1905	25-33 $\frac{1}{2}$	24 $\frac{1}{2}$	20-64	25-43 $\frac{1}{2}$	24-27	49 $\frac{1}{2}$	—	25-41	18-40	18-40	18-40
1906	25-37 $\frac{1}{2}$	24 $\frac{1}{2}$	20-72	25-46 $\frac{1}{2}$	24-35	49 $\frac{1}{2}$	—	25-43 $\frac{3}{4}$	18-45	18-45	18-44
1907	25-16	24 $\frac{1}{2}$	20-74	25-49	24-46	49 $\frac{1}{2}$	—	25-56	18-50	18-50	18-50
1908	25-27 $\frac{1}{2}$	24 $\frac{1}{2}$	20-58	25-36 $\frac{1}{2}$	24-26	49 $\frac{1}{2}$	—	25-37 $\frac{1}{2}$	18-43 $\frac{1}{2}$	18-43 $\frac{1}{2}$	18-43 $\frac{1}{2}$
1909	25-34	24 $\frac{1}{2}$	20-62	25-53 $\frac{3}{4}$	24-26	49 $\frac{1}{2}$	—	25-42 $\frac{1}{2}$	18-41	18-40	18-40
1910	25-20	93-90	20-44	25-32	24-01	—	2/0 $\frac{3}{4}$	25-30	—	—	—
1911	25-46 $\frac{1}{2}$	25 $\frac{1}{2}$	20-66	25-68 $\frac{1}{2}$	24-32	49 $\frac{1}{2}$	—	25-30	18-43 $\frac{1}{2}$	18-43 $\frac{1}{2}$	18-42
1912	25-23	94-10	20-46 $\frac{1}{2}$	25-51	24-16 $\frac{1}{2}$	—	2/0 $\frac{3}{4}$	25-59 $\frac{1}{2}$	—	—	—
1913	25-24 $\frac{1}{2}$	95-10	20-46	25-95 $\frac{1}{2}$	24-15 $\frac{1}{2}$	—	2/0 $\frac{3}{4}$	25-38 $\frac{1}{2}$	—	—	—
1914	25-15 $\frac{1}{2}$	95-10	20-50 $\frac{1}{2}$	25-25 $\frac{1}{2}$	24-17	—	2/0 $\frac{3}{4}$	25-41 $\frac{1}{2}$	—	—	—
1915	26-85	127	—	28-99 $\frac{1}{2}$	—	4-77	7 $\frac{3}{4}$	25-35 $\frac{3}{4}$	18-15	18-15	18-15
1916	28-13 $\frac{3}{4}$	155 $\frac{3}{4}$	—	30-36	—	4-76 $\frac{1}{2}$	9 $\frac{1}{4}$	—	16-20	16-20	16-25
1917	27-39 $\frac{1}{2}$	217 $\frac{1}{2}$	—	34-30	—	4-76 $\frac{1}{2}$	2/1 $\frac{1}{4}$	—	16-15	15-57	16-27
1918	27-15	—	—	43-72 $\frac{1}{2}$	—	4-76 $\frac{1}{2}$	2/2 $\frac{1}{4}$	—	15-11 $\frac{1}{2}$	13-36 $\frac{1}{2}$	15-30 $\frac{1}{2}$
1919	29-72 $\frac{1}{2}$	—	—	36-65	—	4-59 $\frac{3}{4}$	2/2 $\frac{1}{4}$	30-70	18-45	17-97 $\frac{1}{2}$	19-50 $\frac{1}{2}$
1920	48-12 $\frac{1}{2}$	—	152	66-75	502 $\frac{1}{2}$	3-95 $\frac{3}{8}$	2/7 $\frac{1}{4}$	45-65	24-12 $\frac{1}{2}$	17-87 $\frac{3}{4}$	24-20
Par rate of £ stg.	25-23 frcs.	9-46 rbls.	20-43 marks.	25-23 lire.	24-02 kronn.	4-886 dols.	9-75 yen.	25-23 frcs.	18-16 kmr.	18-16 kmr.	kmr.

The rates of exchange shown in the above table have been filled in by the *Financial Times* of London. It should be noted that the method of recording the U.S.A. rates changed between 1911 and 1915.

# BOGART'S ESTIMATED COST OF THE GREAT WAR 1914—1918

## DIRECT AND INDIRECT COSTS OF THE GREAT WORLD WAR

Total direct costs, net . . . . .	\$186,233,637,097
Indirect costs :	
Capitalised value of human life :	
Soldiers . . . . .	33,551,276,280
Civilians . . . . .	33,551,276,280
Property losses :	
On land . . . . .	29,960,000,000
Shipping and cargo . . . . .	6,800,000,000
Loss of production . . . . .	45,000,000,000
War Relief . . . . .	1,000,000,000
Loss to neutrals . . . . .	1,750,000,000
	<hr/>
	\$151,612,552,560
Total indirect costs . . . . .	151,612,552,560
	<hr/>
Grand Total . . . . .	<u>\$337,846,189,657</u>

Equivalent at par rate of exchange to over £70,000,000,000  
(SEVENTY THOUSAND MILLION POUNDS).

According to press reports from Paris, the Peace Conference Committee on Reparations presented a first report in which the losses to the Entente Allies were stated as \$120,000,000,000, and which proposed that this amount should be exacted from the Central Powers as indemnity. Later this sum was scaled down to a much lower figure, as only non-military property damage was included.—*New York Times*, March 4, 1919.

No attempt has been made to place a money value

on the crippled soldiers and the invalided and de-vitalised army and civilian population. If this were included the totals would be considerably increased.

*Note.*—This is the last page of *Direct and Indirect Costs of the Great World War*, by Ernest L. Bogart, Professor of Economics at the University of Illinois. Published by "Carnegie Endowment for International Peace."

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